THE physical therapy REVIEW

35th Annual Conference
American Physical Therapy Association
Olympic Hotel Seattle, Washington
June 15-20, 1958

Physical Therapy for the Junior Citizen — BOWEN

Law for Physical Therapists — CREIGHTON

Physical Therapy for Muscular Dystrophy Children — WRATNEY

State Registration of Physical Therapists

Case Report — BINNING

Suggestions from the Field — GORDON

Volume 38, Number 1 **January 1958**

PUBLISHED MONTHLY BY
AMERICAN PHYSICAL THERAPY ASSOCIATION

PRESTON

A Complete Line

FOR PHYSICAL MEDICINE AND REHABILITATION

Featured Items for January – WRITE FOR ILLUSTRATED LITERATURE.

• "AMBUL-AID" — TRAINING WALKER

The ONE Walker that can be used for every type patient. New Design. Crutches laterally and vertically adjustable by finger-tip control. Wheels have brakes. Each wheel swivels independently or locks in parallel position—giving the walker lateral stability when needed (for performing swing through gait, etc.). Adjustable in height. Substantially constructed—entirely of aluminum. Order by Catalog Numbers:

PC 2340 Ambul-Aid Adult Size complete $176.50
PC 2342 Same — less hip straps and abductor rods $165.50

Also available in Child Size (at $6.00 below price of Adult Walker)

• THE NK EXERCISE UNIT MODEL 100

. . . was developed for effective administration of progressive resistance exercises to the important knee joint muscle groups. It consists of a table (30 x 36 x 30" high), one resistance arm for weights, one exercise arm and an ROM indicator. The angle between the arms is adjustable — therefore *maximum or minimum resistance can be given at any point in the range,* and a variety of resistance patterns can be obtained. This unit may also be used for BK amputees or BK fracture cases. An efficient and time-saving adjunct to any PT program. Used in many leading hospitals and rehabilitation centers. Order by Catalog Numbers:

PC 2251A NK Exercise Unit Standard Model 100 ..... $179.50
PC 2251F NK Folding Model 200 with folding table for wall attachment $179.50

• THE NEW PRESTON CATALOG 1058

Describes Today's Most Complete Line of Equipment for REHABILITATION, EXERCISE, HYDROTHERAPY and ELECTROTHERAPY. Also: DIAGNOSTIC APPARATUS, TRACTION DEVICES, CEREBRAL PALSY FURNITURE, WHEELCHAIRS, WALKERS, LIFTERS, CRUTCHES and SELF HELP DEVICES.

Write for your free copy today.

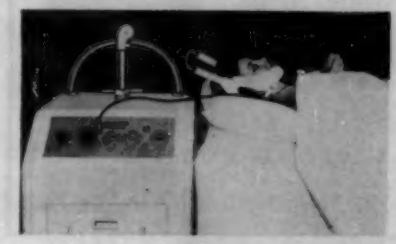
Layouts and lists of suggested equipment for new departments are available free of charge.

J. A. PRESTON CORP.

175 FIFTH AVENUE, NEW YORK 10, N. Y.

PRESTON

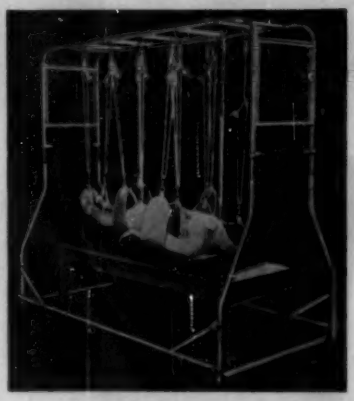
• THE HAUSTED TRACTIONAID



The most advanced traction unit offering a great versatility of applications and many exclusive features. Operated hydraulically, it provides both intermittent and steady cervical and pelvic traction. Patient can be sitting on a chair or lying on a treatment table or in bed. Amount of traction from 0-100 lbs. can be selected by merely setting a dial; the same applies to the periods of traction and rest which can be individually controlled. Automatically compensates for patient's movement. Order by Catalog Number:

PC 2895 Hausted Tractionaid, Complete with headsling and pelvic belt $690.00

• THE GUTHRIE SMITH APPARATUS



...permits a great variety of remedial exercises with limb suspension or full body suspension. The apparatus originated in England and is the mainstay of the British rehabilitation clinic. It is now successfully used in a large number of PMR Departments in the U.S.

The GUTHRIE SMITH APPARATUS permits complete elimination of gravity and friction and has many advantages over treatment in a pool or Hubbard tank. Movement in suspension can be passive or active—assistive, free or resistive. A useful adjunct for the initiation of movement following recent fractures, for muscle reeducation in nerve injuries, polio, spinal cord injuries resulting in paraplegia, and in cases of cerebral accidents.

Literature upon request. Order by Catalog Numbers:

PC 2110 Guthrie Smith Suspension Apparatus $330.00

PC 2120 Same—Portable Model $330.00

• THE HANDY-STANDIE SPLINT

...helps start patient training immediately without waiting for permanent braces to be completed. Designed to aid the therapist in ambulatory training, exercising and for emergency leg support. For trial walking it can be used to determine exact brace requirements. THE HANDY-STANDIE SPLINT is constructed of a durable aluminum alloy and high quality leather. It is adjustable for both children and adults and can be used on either left or right leg. Order by Catalog Number:

PC 4388 Handy-Standie Splint ..... per pair $51.00

Also available singly at $25.50 each.

J. A. PRESTON CORP.

175 FIFTH AVENUE, NEW YORK 10, N. Y.

ALL your needs supplied by ONE reliable source.

For Treatment of **SPASTIC CASES · CEREBRAL PALSY · STROKE**
POLIO · HAND INJURIES

General Electric Company's

Silicone BOUNCING PUTTY

DOES NOT HARDEN . . . LASTS INDEFINITELY . . . CAN BE AUTOCLAVED

PHYSICAL THERAPY

As a *"TRIAL ORDER"* — Send $2.00 for One $2.85 Jar

S. R. GITTENS, *Sole Distributor* · **1620 Callowhill Street, Phila. 30, Pa.**

Here's a superior therapeutic aid

NEW **WARREN** *Therapeutic exercise mats*

This new WARREN product is not to be confused with conventional gym mats! They are designed expressly with Physical Therapy in mind and fulfill every requirement demanded by Physical Therapists and Doctors of Physical Medicine.

GENTLE YET FIRM SUPPORT

WARREN THERAPEUTIC EXERCISE MATS have a thick core of POLY-URETHANE FOAM. This new "miracle material" gives soft, gentle support to tender areas of the patient; yet heavier portions of the body do not sag into the mat, thus defeating its therapeutic value.

SMOOTH BOARD EFFECT

The specially developed covering of durable fabric backed plastic is perfectly smooth, with NO TUFTS - NO HARD KNOTTED SEAMS - NO DEPRESSIONS to impede movement of the limbs.
WARREN THERAPEUTIC EXERCISE MATS weigh only a few pounds - are easily picked up and carried by one person. They are fireproof and HIGHLY RESISTANT to moth, mold and mildew.
Available in 4' x 7', 4' x 10' sizes or CUSTOM MADE TO ORDER.... any size.

WRITE FOR NEW DESCRIPTIVE BROCHURE.
ASK ABOUT THE COMPLETE WARREN LINE OF
THERAPEUTIC FURNITURE AND EQUIPMENT.

Exhibitors at Annual Conference of the American Physical Therapy Association

On page 51 we look back to 1957 and visits with exhibitors at the annual Conference in Detroit. On pages following this we look forward to the 1958 Conference and plans for Seattle.

MORE and MORE ultra-sound users are changing to the

Medco-sonlator WHY? . . . RESULTS!

Provides HEAT-with RHYTHMIC MECHANICAL OSCILLATIONS, PLUS MASSAGE-with ELECTRICAL MUSCLE STIMULATION

The MEDCO-SONLATOR combines two proven therapies into one unit. This permits the use of Electrical Muscle Stimulation and Ultrasound (from the same unit) either individually or simultaneously. It is truly a complete therapy, Ultra-Sound, Neuro-Muscle Stimulation, Massage, Heat, and above all, the Combined Therapy with its Diagnostic ability.

FOR THOSE DESIRING ONLY MUSCLE STIMULATION see the

Medcolator®

WITH RECIPROCAL STIMULATION

The Medcolator provides electrical stimulation, an adjunct therapy for sprains, dislocations and other trauma of the muscle and skeletal systems.

Write Department "P" for Complete Information and FREE Myofascial Chart.

The MEDCO-SONLATOR carries F. C. C. Type Approval No. U-135 and is licensed under U. S. Patents to A. T. & T. and Western Electric Company for Therapeutic Generators. Pats. Pend.

MEDCO ELECTRONICS COMPANY, INC.

Division of Medco Products Co.

2607 EAST ADMIRAL PLACE ■ P. O. BOX 1275 ■ TULSA, OKLA.

Physical Therapy Review

JANUARY 1958
Vol. 38 No. 1

IN THIS ISSUE

Physical Therapy for the Junior Citizen — Carolyn Bowen 15

Law for Physical Therapists — Helen Creighton, J.D. . . 22

Physical Therapy for Muscular Dystrophy Children — Martha J. Wratney 26

State Registration of Physical Therapists 33

Physical Therapy Practice Acts: Provisions for Reciprocity or Endorsements 40

Regular Features

Case Reports

Physical Therapy Management of Arthrotomies of the Knee — Marcel Binning, Major, AMSC . 42

Suggestions from the Field

Colored Light and Shadow Player — Elaine Travis Gordon 45

Index to Current Literature 32

Editorial 48

Association News . . . 50

Conference 1958 . . . 52

Student Column 60

Physical Therapy Programs 64

Abstracts 66

Book Reviews 73

Our Book Reviewers for January 75

What's New 76

Short Term Courses . . 12

American Physical Therapy Association

Officers

E. Jane Carlin ..... President
Helen Vaughn ..... Vice President
Louise Bailey ..... Secretary
Dorothy Hoag ..... Treasurer
Agnes Snyder ..... Speaker, House of Delegates

Directors

Dorothy Graves — Harriet S. Lee
Susanne Hirt — Mary N. St. Coeur

Advisory Council

Thomas F. Hines, M.D.
Wesley G. Hutchinson, Ph.D.
Charles U. Letourneau, M.D.
Robert L. Leopold, M.D.
A. R. Shands, Jr., M.D.

National Office Staff

Mary E. Haskell ..... Executive Director
Lucy Blair ..... Associate Executive Director

Chapter-Membership Services
Dorothy E. Voss

Educational Services
Sarah Rogers
Helen Hickey — Edna Goldwater

Professional Services
Lucy Blair — Lillian E. Chabala

Associate Editors
Helen Hislop
Barbara Robertson
Kathryn Shaffer
Jessie F. Waddell

Editor in Chief
Sara Jane Houtz

Managing Editor
Carol Vance

Advertising Representative
Gordon M. Marshall Co.
Chicago Office: 30 West Washington St. Chicago 2, Illinois
New York Office: Room 404, 7 West 44 St. New York 36, New York

The *Physical Therapy Review* is published monthly by the American Physical Therapy Association, 1790 Broadway, New York 19, N. Y. Reentered as second class matter August 11, 1949 at the post office at New York, N. Y., under the act of Congress of Aug. 24, 1912.

Subscription rates: $6.00 per year to nonmembers; $6.75 in Canada and foreign countries. Single copies 75¢; to members 50¢; back issues 50¢.

Available in microfilm edition.

The statements in the manuscripts published in The *Physical Therapy Review* are made solely on the responsibility of the author. The American Physical Therapy Association does not assume any responsibility for statements contained therein. Manuscripts accepted for publication in The *Physical Therapy Review* are for exclusive publication and may not be published elsewhere without permission.

SEND FOR YOUR CATALOG OF

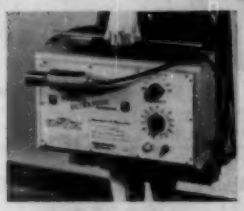
Rehabilitation Products

Rehabilitation Products offers you the most complete variety of advanced equipment and supplies in the field—plus unequaled distribution and service facilities. So send for your helpful RP Catalog today!

Ball Bearing Feeder

Increase self reliance of patients with arm paralysis. With feeder, patient can get his hand from plate to mouth, write, paint or read with minimum effort—without assistance. Fits any make metal wheel chair. Specify right or left hand.

No. 5220—Each $37.50



TOMAC Portable Ultrasonic Generator

Lightweight—only 28 lbs. May be carried from patient to patient or hung on a wall. Natural quartz crystals produce reliable frequency with output controlled in pre-set stages. Unit is type approved by FCC. Listed by Underwriters' Laboratories.

No. 1707—Straight Sound Head. Each .. $375.00

TOMAC Plastic Goniometer

New, clear plastic Goniometer offers three big advantages: 1) you can locate pivot points and observe joint action through the plastic; 2) it holds firmly in any set position; 3) has double 180° scale—permanently etched graduations for easy reading.

No. 1340—Each $11.75

TOMAC Ankle-Action Tripod Cane

Patients are assured of constant stability with the new Ankle-Action Tripod Cane (at left). All three feet are kept in contact with the floor at all times by the flexible rubber mount.

No. 7883—Each $9.75

Canadian Crutches (at right). Lightweight, but strong aluminum and easy to handle. Adjust from 28½" to 35". Hinged arm band.

No. 7845—Pair $18.00

To receive your Rehabilitation Products Catalog, just complete and mail this coupon.

Rehabilitation Products
Division of American Hospital Supply Corporation
Department PT
2020 Ridge Avenue, Evanston, Illinois

Dear Sirs:
Please send me a copy of the Rehabilitation Products Catalog.

Name _____ Title _____

Organization _____
(Name of hospital, clinic, etc.)

Department _____

Address _____

City and Zone _____ State _____

HYDROCOLLATOR

Steam PACK

MOIST HEAT

Now moist heat can be applied conveniently, effectively and with a minimum investment in equipment. No dripping, no wringing, no repeated applications. Each application gives at least 30 minutes effective moist heat. The Steam Pack is merely heated in water, wrapped in a towel, and applied. Standard equipment in leading hospitals and clinics across the nation.

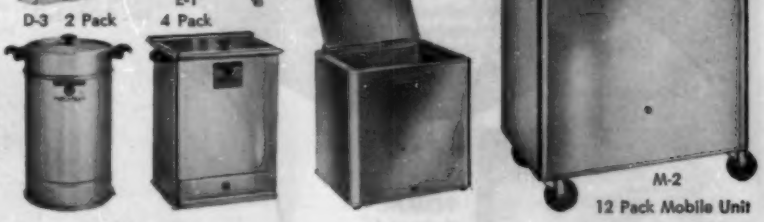
DESCRIPTIVE MATERIAL ON REQUEST

CHATTANOOGA PHARMACAL CO., INC.

CHATTANOOGA 5, TENNESSEE

MASTER UNITS

Four all stainless steel models to meet the various requirements in hospitals, clinics, physicians' offices, and patients' homes. Automatically maintains Steam Packs in water at proper temperature — constantly ready for immediate use. No plumbing used.

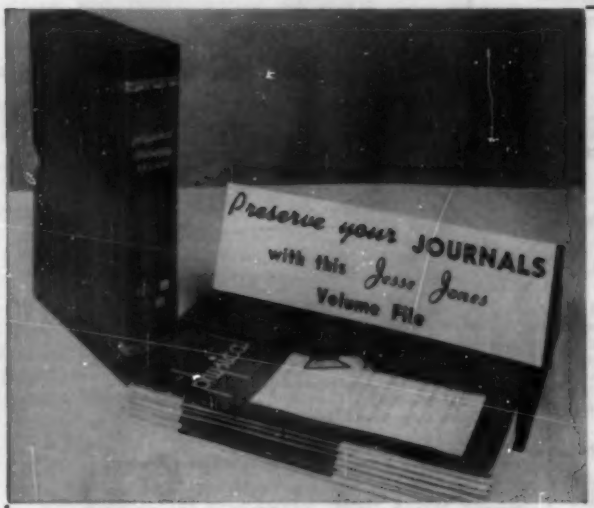


D-3 2 Pack

E-1 4 Pack

SS — 6 Pack

M-2 12 Pack Mobile Unit



DUST PROOF HOLDER for the PHYSICAL THERAPY REVIEW

Designed to hold up to 12 issues; volume file is dark green, trimmed in maroon and lettered in 16-carat gold. Sturdy and attractive for desk or library shelf.

***Current issues are protected yet readily accessible.* Order direct.**

$2.50 Each

3 for $7.00

6 for $13.00

Carefully Packed - Sent Postpaid

Jesse Jones Box Corp.

P.O. Box 5120, Philadelphia 41, Pa.

Send me ..... files for the PHYSICAL THERAPY REVIEW

Enclosed $.....

Name_____

Street_____

City_____ Zone_____

State_____

Announcing An Outstanding Educational Opportunity for Physical Therapists...

the Sponsor —The Army Medical Service, whose mission is to provide the finest care available for the Army's sick and wounded personnel. Army physical therapists make a distinguished contribution to the Service by treating patients with the most modern heat, light, electricity and exercise equipment and facilities.

the Program —An AMSC-sponsored Physical Therapy Course, enabling you to qualify for active membership in the American Physical Therapy Association without financial worry. This 12-month course is divided into two phases. The first (seven months) is conducted at the Army Medical Service School, Fort Sam Houston, Texas, where you will learn the fundamentals of the sciences and skills basic to physical therapy. The second (five months) is conducted at one of three teaching hospitals where you will receive both clinical instruction and practice. Upon entering the course, you will be commissioned a Second Lieutenant in the AMSC Reserve, and will receive $222.30 per month plus $47.88 monthly subsistence and quarters. In addition to enjoying the rank, pay and prestige of an Army officer, you will have a 30-day vacation with pay every year. After completing your course, you will be assigned as a staff member in an Army hospital, working with other officers in an outstanding professional career.

the Qualifications —A bachelor's degree from a college or university approved by the Department of the Army with qualifying courses in the biological and physical sciences and psychology. Laboratory courses in biology, chemistry and physics are strongly recommended.

You owe it to yourself to obtain full details on this outstanding educational opportunity. Simply clip and mail this coupon today, and you will receive all the facts—at no obligation!

Army Medical Specialist Corps

PTR-1-58

THE SURGEON GENERAL
Department of the Army
Washington 25, D. C.

Please send me full details on the Army Medical Specialist Corps' Physical Therapy Course.

Name .....

Address .....

City ..... State .....

School ..... Date of Graduation .....

American Physical Therapy Association

Association Officers, Standing and Advisory Committees

Board of Directors

President:	E. Jane Carlin, Jenkintown, Pa.	1956–1958
Vice-President:	Helen H. Vaughn, Arlington, Va.	1956–1958
Secretary:	Louise A. Bailey, Chicago, Ill.	1956–1958
Treasurer:	Dorothy G. Hoag, Denver, Col.	1956–1958
Speaker of the House:	Agnes P. Snyder, Washington, D.C.	1956–1958
Directors:	Dorothy A. Graves, Los Angeles, Calif.	1956–1960
	Susanne Hirt, Richmond, Va.	1956–1960
	Mary N. St. Coeur, Montpelier, Vt.	1956–1958
	Harriet S. Lee, Washington, D.C.	1956–1958

Advisory Council

Thomas F. Hines, M.D., New Haven, Conn.	1956–1958
Wesley G. Hutchinson, Ph.D., Philadelphia, Pa.	1956–1958
Robert L. Leopold, M.D., Philadelphia, Pa.	1956–1958
Charles U. Letourneau, M.D., Chicago, Ill.	1956–1958
A. R. Shands, Jr., M.D., Wilmington, Del.	1956–1958

Standing Committees

Conference Program Committee

Gudrun Tandberg, *Chairman*, Seattle, Wash.	1956–1959
Marcia Shaw, St. Clair Shores, Mich.	1954–1958
Hazelle Erickson, Minneapolis, Minn.	1957–1960

Finance Committee

Dorothy Hoag, *Chairman*, Denver, Col.	1954–1958
James M. Bauer, Storrs, Conn.	1954–1958
Eleanor Bader, Wilmington, Del.	1956–1960

Judicial Committee

Clara Arrington, *Chairman*, Washington, D.C.	1954–1960
Ruth Guerin, Philadelphia, Pa.	1954–1958
Leon Stutzman, Monterey, Calif.	1954–1958
George Brunner, Worthington, Ohio	1956–1962
Anna L. Sweeley, Boise, Idaho	1956–1962

Nominations Committee

Margaret Moore, *Chairman*, Chapel Hill, N.C.	1956–1958
Thelma Pedersen, Norman, Okla.	1956–1958
Barbara White, Takoma Park, D.C.	1956–1958
Margaret Knott, Vallejo, Calif.	1956–1958
Mary E. McDonnell, Louisville, Ky.	1956–1958

Review Editorial Board

Sara Jane Houtz, *Editor-in-Chief*, Detroit, Mich.	1956–1958

Associate Editors

Helen Hislop, Linden, N.J.	1956–1958
Jessie F. Waddell, Lansing, Michigan	1958–1960
Kathryn Shaffer, Madison, Wis.	1956–1958
Barbara M. Robertson, Ft. Sam Houston, Tex.	1956–1958

Advisory Committees

Advisory Committee on Chapter Activities

Katherine Chilcote, *Chairman*, Denver, Colo.	1954–1958
Sarah W. Bassett, Boston, Mass.	1956–1961
Wayne H. Perdue, Omaha, Neb.	1956–1961
Helen Blood, Salt Lake City, Utah	1956–1961
Dorothy Page, Albany, N. Y.	1957–1962

Advisory Committee on Professional Education

Margaret Kohli, Madison, Wis.	1954–1959
Dorothy Billenstien, New York, N.Y.	1956–1960
Agnes Snyder, Washington, D.C.	1956–1961
Charlotte Anderson, Los Angeles, Calif.	1956–1962
Thelma Pederson, Norman, Okla.	1958–1963

Advisory Committee to the Department of Professional Services

Frances Ekstam, *Chairman*, Indianapolis, Ind.	1954–1958
Mary E. Rexroad, Oklahoma City, Okla.	1954–1958
Ann Craig, Gonzales, Texas	1956–1961
Edna M. Blumenthal, Durham, N.C.	1956–1961
Daniel H. Strelnick, Wauwatosa, Wis.	1956–1961

Ad Hoc Committees

Steering Committee of the Board of Directors

E. Jane Carlin, *Chairman*, Jenkintown, Pa.
Agnes P. Snyder, Washington, D.C.
Helen H. Vaughn, Arlington, Va.

Film Advisory Committee

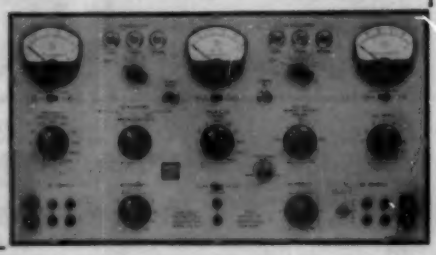
Laura K. Smith, Houston, Texas
Bernard Strohm, Columbus, Ohio
Clara Arrington, Washington, D.C.
Mildred Elson, *Technical Advisor*, Woburn, Mass.

TECA CORPORATION

CONSOLE MODEL CD4PS

low volt generator

The most complete model for the P.M. & R. Department. Newly designed; a unit of proven utility, now improved and simple to operate. Model CD4PS provides a comprehensive range of AC and DC (galvanic) currents for all therapy and R.D. testing applications. A broad spectrum of sine, square wave and pulse currents are available. Separate circuits are used for AC and DC output. Supplied in a stain-proof formica cabinet.



Write for detailed bulletin 87 CD4

TECA CORPORATION · 80 MAIN ST. WHITE PLAINS, N. Y.

complete integrated facilities for

ELECTROMYOGRAPHY

- **SINGLE CHANNEL EMG** Model TE 1.2-7 — with two-channel magnetic tape recorder for recording notes and EMG simultaneously.
- **TWO-CHANNEL EMG** Model TE 2-7 — permits simultaneous recording and study of two EMG potentials or of one potential together with a related physical parameter such as force or pressure.

• Automatic controls and new circuits provide simplified reliable operation without shielded rooms in most locations. • EMG potentials faithfully reproduced by special recorder circuits. • Specifications equal or surpass requirements for research, teaching, and clinical use.

• *NEW rugged COAXIAL NEEDLE ELECTRODE withstands autoclaving, has tapered shaft with 26 gauge tip and insulated handle.*

TECA CORPORATION

80 Main Street
White Plains
New York

4-WAY ADJUSTABLE LEG SUPPORT

Patent 2,633,896 Other Patents Pending NO. 100-LS

Weight, 5 lbs.
f. o. b. St. Louis, Mo. Price, $24.50

THE NEW . . .
DOUBLE PURPOSE *LAHAY*

The new Lahay 4-Way Adjustable Leg Support is the most modern advanced design in adjustable leg supports. A quick positive method for converting a standard metal folding wheel chair into a fracture chair.

Simple adjustment *elevates* or *lowers* either leg support by degrees and adjusts to *adduction* (in) or *abduction* (out) positions, to the individual's needs. Remains firm in adjusted position and will not move or slip. Is also an excellent support for either leg while removing plaster cast.

Constructed of durable, light-weight aluminum with comfortable, shock-resisting sponge rubber pad resting on a strong aluminum plate.

MANUFACTURED AND DISTRIBUTED BY

CHAS. A. SCHMIDT INSTRUMENT CO.

3689 OLIVE STREET SAINT LOUIS 8, MISSOURI

LOCAL AND LONG DISTANCE PHONE: JEFFERSON 3-4662

PHYSICAL THERAPY
AMERICAN ASSOCIATION
P T

Illustrations
Actual size

Your Emblem

PRICE: ONLY 25 CENTS

New use of blue and gold makes this emblem more effective.

Your Pin

PRICE: $4.50

New lightweight pin is more attractive.

AMERICAN PHYSICAL THERAPY ASSOCIATION
1790 Broadway, New York 19, N. Y.

Georgia Warm Springs Foundation

GRADUATE COURSE

Physical Therapy and Occupational Therapy in the Care of Poliomyelitis

This course is open to graduates of approved schools of physical and occupational therapy. Such graduates must be members of the American Physical Therapy Association and/or American Registry of Physical Therapists, or American Occupational Therapy Association.

ENTRANCE DATES: First Monday in January, April and October.

COURSE I—Emphasis on care of convalescent neuro-muscular disease with intensive training in functional anatomy, muscle testing, muscle reeducation and use of supportive and assistive apparatus. This course is complete in itself.

COURSE II—Three months duration with Course I prerequisite. Emphasis on care of severe chronic physical handicaps with intensive training in resumption of functional activity and use of adaptive apparatus.

IN-SERVICE TRAINING PROGRAM—Fifteen months duration at salary of $225 per month plus full maintenance, increasing to $250 per month at the completion of nine months. This program includes training in Course I and II.

TUITION: None. Maintenance is $100 per month. For scholarship to cover transportation and maintenance for Courses I and II, contact National Foundation for Infantile Paralysis, Inc., 120 Broadway, New York 5, New York. (Scholarships require two years of experience.)

For further information contact:

Robert L. Bennett, M.D., Medical Director

Georgia Warm Springs Foundation
Warm Springs, Georgia

35th ANNUAL CONFERENCE

AMERICAN PHYSICAL THERAPY ASSOCIATION

June 15-20, 1958

OLYMPIC HOTEL
Seattle, Washington

Combine . . .

a vacation in the great Northwest

Elgin PROGRESSIVE RESISTANCE EXERCISE EQUIPMENT

Elgin Exercise Unit Model No. A-1500

administration of over 100 therapeutic exercises!

It has been proven that exercise therapy must be accurately controlled if the desired end results are to be obtained . . . Elgin, the original designers and manufacturers of Progressive Resistance Equipment, offers the only complete line of exercise equipment designed to meet these requirements. The Elgin line has been developed, in a scientific manner, to give Doctors and Therapists the correct clinical tools with which to properly administer exercise therapy to both surgical and non-surgical patients.

It provides a wide exercise range, from simple functional exercises to the most highly definitive focal exercises. This equipment also provides a means for an effective and efficient out-patient clinic for patients requiring therapy. An Elgin sales consultant would appreciate the opportunity of assisting you in planning for the inclusion of Progressive Resistance Exercise Equipment in your physical therapy department. Write today for complete information.

ELGIN EXERCISE UNIT
Model No. AB-150

ELGIN LEG EXERCISE
(Ankle) Model No. LE-125

Write today for information on the complete line of Elgin Exercise Accessory Equipment and Therapy Techniques, request Catalog 200.

Elgin EXERCISE APPLIANCE CO.

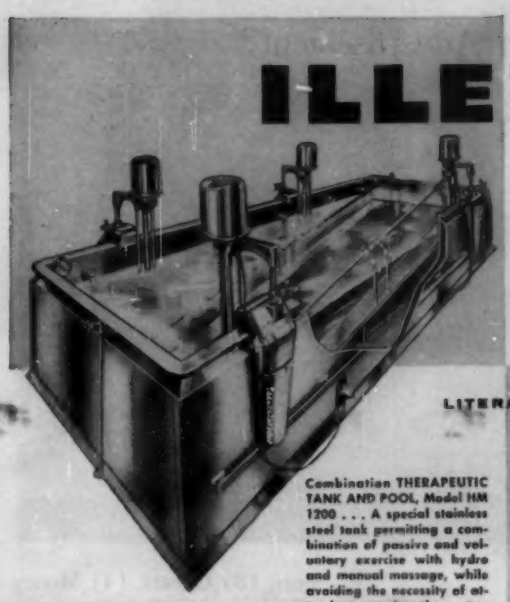
P. O. BOX 132 • ELGIN, ILLINOIS

SHORT TERM COURSES FOR GRADUATE PHYSICAL THERAPISTS

Title of Course	*Sponsor of Course*	*For Details Contact*	*Dates of Course*
Cerebral Palsy	The North Carolina Cerebral Palsy Hospital Durham, North Carolina	Edna Blumenthal Director of Rehabilitation No. Carolina C. P. Hosp. Durham, North Carolina	Courses offered every 3 months—dates arranged according to individual need
Postgraduate Cerebral Palsy Courses	Columbia University College of Physicians & Surgeons	Office of the Dean Postgrad. Course in C. P. College of Phys. & Surg. 630 West 168th St. New York City, N. Y.	March 3 — May 2, 1958
Comprehensive Patient Care	Univ. of So. Calif. and Rancho Los Amigos	Charlotte W. Anderson, Head Dept. of Physical Therapy Univ. of So. California Los Angeles 7, California	March 3 — 21 July 14 — Aug. 1
Advanced Course in Physical Rehabilitation Methods	NYU-Bellevue Med. Cen. and NYU Sch. of Education	Mrs. Edith Lawton, Dir. Courses for Physical Therapists Institute of P. M. & R. 400 E. 34th Street New York City, N. Y.	Feb. 3 — 28, 1958 Apr. 28 — May 23, 1958
Physical Therapy in the Care of Neuromuscular Disease	Georgia Warm Springs Foundation Warm Springs, Georgia	Robert L. Bennett, M.D. Medical Director Ga. Warm Springs Found. Warm Springs, Georgia	January April October
Postgraduate Course in Technics of Treatment	The Children's Rehabilitation Institute for Cerebral Palsy Reisterstown, Maryland	Christopher H. Wiemer Executive Director Children's Rehab. Inst. Reisterstown, Maryland	Apr. 7 — June 20, 1958 July 7 — Sept. 19, 1958 Oct. 6 — Dec. 19, 1958
Principles of Rehabilitation	University of Pennsylvania & U.S. Office of Vocational Rehabilitation	Rehabilitation Center Hospital of the University of Pennsylvania Philadelphia 4, Pennsylvania	Feb. 3 — 7, 1958 April 7 — 11, 1958
Technics of Neuromuscular Reeducation	California Rehabilitation Center Vallejo, California	Margaret Knott Chief P. T. Calif. Rehab. Center Vallejo, Calif.	January 1 April 1
Above-Knee Prosthetics	Postgraduate Medical School & College of Engineering New York University	Prosthetics Ed. Program New York University Postgrad. Medical School 550 First Avenue New York 16, N. Y.	Feb. 24 — Mar. 7, 1958 Apr. 28 — May 9, 1958
Upper Extremity Prosthetics	Postgraduate Medical School & College of Engineering New York University	Prosthetics Ed. Program New York University Postgrad. Medical School 550 First Avenue New York 16, N. Y.	June 9 — 20, 1958
Prosthetics Education Program for Therapists	University of California & U.S. Office of Vocational Rehabilitation	Prosthetics Education Medical Center University of California Los Angeles, California	Mar. 17 — 21, 1958 June 16 — 20, 1958

ILLE

ENGINEERED
for efficient,
economical service



Combination THERAPEUTIC TANK AND POOL, Model HM 1200 . . . A special stainless steel tank permitting a combination of passive and voluntary exercise with hydro and manual massage, while avoiding the necessity of attendant entering the water.

Combination ARM, LEG AND HIP TANK, Model HM 650. . . Stationary, stainless steel unit for hydromassage and subaqua therapy. Water mixing valve is thermostatically controlled.

LITERATURE ON REQUEST

Hudgins MOBILE SITZ BATH, Model SB 100 . . . For hospital, clinic or office use . . . sturdy stainless steel and aluminum . . . easy to clean and assemble. Electric heater (optional) maintains temperature of solution.

ILLE ELECTRIC CORPORATION
Reach Road, Williamsport, Pa.

GRADUATE PHYSICAL THERAPY TRAINING PROGRAM

Respiratory Center for Poliomyelitis
Rancho Los Amigos Hospital

Beginning Dates: First Tuesday in September; first Monday in March of each year.

Duration of Training: Three or six months.

Maintenance Salary: $246.00 per month or for scholarship to cover maintenance and transportation, contact National Foundation for Infantile Paralysis, Inc., 301 East 42nd Street, New York 17, N. Y.

Housing: Rooms and meals available at the Hospital at minimum cost.

Description of Training: A comprehensive 3 or 6 months' on-the-job training program for graduates of approved schools of physical therapy. Emphasis will be placed on the rehabilitation of patients with various neuromuscular disabilities and the severely involved polio patient.

Address Communications to:
PHYSICAL THERAPY INSTRUCTOR
RANCHO LOS AMIGOS HOSPITAL
Downey, California

Get the books that give you the secrets of profitable hobbies

Jewelry Making
FOR FUN AND PROFIT

By **HELEN CLEGG** and **MARY LAROM.** Make beautiful bracelets, earrings, buttons, rings, etc., out of brass, gold and silver wire, lucite, other materials. Book includes where to get materials, where and how to sell the jewelry. 332 "how to" diagrams, photos of 60 finished pieces.

Enameling
FOR FUN AND PROFIT

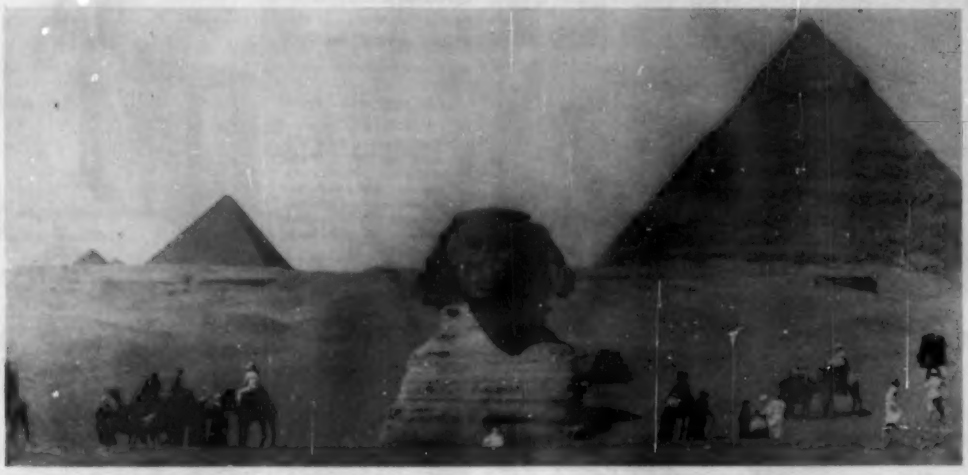
By **MARY LAROM.** Make the enamels everyone admires today. This book gives full instructions on equipment, preparing and storing enamels, firing, stencils, kilns, lustres, overglaze colors, selling your work and much more. Money saving, tested short cuts a feature. Every step fully illustrated.

David McKay Co., Inc.
55 Fifth Avenue
New York 3, N. Y.
Please send me ☐
Jewelry Making for Fun and Profit ($3.25)
☐ **Enameling for Fun and profit ($3.00)**

I enclose check ☐
money order ☐ for $_____

Name_____
Address_____
City_____
Zone _____ State _____

THIS (!?) is an Advertisement?



Since I have never been to Egypt I haven't seen the pyramids, but just what kind of an ass would you take me for if I denied their existence after the reports of thousands of competent observers and photographic evidence?

Come to think of it, I have never seen a germ or a virus, nor Sputnik I and II, nor do I know that the moon is not made of green cheese as my Father used to tell us moppets.

I've heard the curt "I don't believe in Ultrasonics" from a surprising number of Therapists, Physiatrists, Internists, 'Orthopods' (in particular), Specialists of all ilk, and GP's.

This would suggest that the authors of over 3,000 published papers and 20,000 medical men who are happily using medical Ultrasonics every day are: (1) Sloppy observers, (2) Dishonest, (3) Extreme enthusiasts, (4) Ax grinders, (5) Conclusion jumpers, (6) Sheep, (7) Run-of-the-mill quacks; and those who make Ultrasonic machines are: (1) Opportunists, (2) Money grabbers, (3) Cheats, (4) Money grabbers, (5) Pseudo-science promoters, (6) Money grabbers, (7) Exploiters of health rackets, (8) Money grabbers, (9) Part-time peddlers of second-hand autos, (10) Money grabbers. Oh, well—a lot of people don't believe in doctors either—that is, until something hurts.

Cordially yours,

Cecil Birtcher

C. J. BIRTCHER

. . .

PS (1) Did you see the article on Ultrasonics in the October issue of the *British Journal of Physical Medicine* and also the editorial? I'll mail you a copy if you wish.

PS (2) Do you have a Birtcher Spot Quartz Lamp? One Physiatrist, chief of a large physical therapy department in a sizable hospital, said to me, "We have about $50,000 worth of equipment here, but we use this handy lamp more than any of it." If you want a bundle of printed matter about the Spot Quartz, ask for it. Please address all communications to Department C.J.B. *(that's me).*

Birtcher

HONEST VALUE . . . SINCERELY PRESENTED

4371 Valley Boulevard, Los Angeles 32, California

The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Physical Therapy for the Junior Citizen*

Carolyn Bowen, B.S.

An understanding of children's growth and of their personality development is a satisfying responsibility of physical therapists who work with young children. With a thorough knowledge of the physical and psychological factors developing in *normal* children we are able to work effectively with *abnormal* children.

It is difficult to say just when and where we should begin to gain this understanding of children. But it seems obvious that programs of physical therapy which prepare students for a career of working with children need to include a comprehensive course in child growth and development. Such a course (condensed) would be of value of all students of physical therapy for it would give them a better understanding of the humanity they will be called upon to help. For the physical therapist as a person, what better preparation could he have for his work and for parenthood than to avail himself of such a course which is offered in many communities either in universities, colleges, adult education courses, or parent education groups?

As the Midcentury Report of the White House Conference suggests, certainly health workers who cannot learn to be sensitive to the child's needs and treat him kindly should not treat or work with children.[1] Before we work with infants and young children, we must try to understand them. One could live, play, and work with children a whole lifetime without fully comprehending the lessons they can teach. Wordsworth said, "The child is father of the man . . .," and this has implications for the physical therapist and his relationship to the disabled child.

This discussion will be confined to the infant or young child under 12 years of age who has an acquired disability and to the implications for physical therapists in their testing, evaluation, and correlation of treatment—based on the modern philosophy of growth and development.

The Modern Philosophy of Child Growth and Development

When I mentioned to another physical therapist that I was doing some research on how children grow, she asked, "What is the good of it? Don't you have to begin working with the child from 'where he is'?" Of course that premise was agreed upon except for the question, "How do we *know* where the child is?" Where the child is is predicated upon the following three theses: first, upon our willingness to accept the child as a person with physical, mental, social, and spiritual growth rights and potentials; second, upon our ability to distinguish normal from abnormal development; and third, upon our working to perfect skill in assessing the motor development of the child and recognizing that prescribed treatment must be compatible with the child's current growth level. Such ability can be achieved through systematic study of the teachings of the leaders in this field, together with our own individual thinking and hard work in evolving new or perfecting known technics of study-

Physical Therapy Consultant, Washington State Department of Health, Seattle.

* Presented at the Annual Conference of the American Physical Therapy Association, Detroit, June, 1957.

ing children and working with them. Fortunate is the physical therapist who works where his professional associates and his little patients and parents are at home with this basic understanding.

The newborn infant is described as possessing infinite wisdom. In the early embryonic stage, movements result from stimuli applied directly to the muscle cells. With nerve tissue development, however, we have "transferred" stimulus, or movement responses to stimuli, and growing integration of stimuli situations, which again results in bodily control from the early gross movements to the specific reaction of parts or muscle groups. Simultaneously, there occurs a gradual development of coordinations between inhibited and released movements with an integration of postural and movement reactions into functionally efficient timed patterns—the so-called "skills." It seems that becoming articulate depends upon one's maturity, whether it be one's bones or speech!

Gesell describes the child's D. Q. (developmental quotient) as the relationship of behavior age to actual age. This concept is perhaps of more practical value to us as physical therapists than that of the I.Q. (intelligence quotient) which is the relationship of mental to chronological age. After birth, behavior development of normal infants and children is in orderly sequence, without extremes of acceleration or deceleration. We know that physical growth of children manifests a sudden spurt in certain ages such as 11 and 12 in boys, and earlier in girls. But even this burst of growth has a quality of orderliness about it. We are told that children cannot be neatly categorized into distinct age growth portraits, but rather that there are fine shadings of previous and foreshadowings of future growth characteristics at any given birthday. Because of this overlapping quality, Gesell prefers to describe child development in age zones rather than as distinct age levels.

To quote a succinct description of this coalescing growth quality in children from Gesell, Ilg, and Ames: "The seething, spilling-over, talkative, 'bursting with energy' 11-year-old is beginning to calm down at 12. He is more capable of organizing his energy, though he expresses this in seemingly opposite extremes: intense activity that pushes through to achieve a goal, and resting easy in noncommittal, leisurely 'hacking around'. Enthusiasm is a quality characteristic of Twelve. With boys this enthusiasm is especially given to sports—to baseball in particular. Even among those who lack ability to play the game, an interest in it may pervade everything they think or do. Girls are often equally ardent in their interest and desire to care for young children. But however strongly enthusiasm for an activity may be expressed, both boys and girls seem suddenly to reach a saturation point and then almost collapse.

"Just how they collapse seems closely related to how they will recover and build up their energy again for further enthusiasms. Some Twelves, after intense activity, collapse hard and do not recover easily. As they did at eleven, they suddenly feel very tired, may develop a cold, and need to rest up for a day or two. Others seem to have a safety valve for more frequent, more gradual releasing of tension. The ones who take it easy and 'fool around' rather aimlessly manage this release process rather nicely. Too frequent attempts by others to goad them into more productive use of time seem to throw their revitalizing mechanisms out of kilter, and actually retard the return to energetic pursuits. We, in the United States, especially in urban living, may be prone to demand too much action. We need to realize that an individual's control of relaxation can be just as important as his control of action." [2]

Evaluating and Testing Infants and Children and Recording Findings

One of the functions of the physical therapist may be to assist the physician in establishing a diagnosis or in assessing current developments within the already diagnosed child, as in the child who has cerebral palsy. In working with infants and children our chief diagnostic aids are not mechanical tools but the sensitive and skillful use of our eyes and hands. We must train our eyes to see what we are looking at when we regard a child. For example, when we are helping the physician to determine use or non-use of an extremity of an infant or young child, who he suspects has a peripheral nerve lesion, we must be able to elicit movement by the most effective method such as tickling, brushing, stroking, applying heat or cold or pressure.[3] The normal infant resists restraint and this technic can be used to excite movement of a body part. We need then to record which method was used to gain response as well as what body part moved. In the infant who is suspected of having an upper motor neuron lesion an accurate recording should be made of what part moved, how, and under what kind of stimulus. Also, we need to note if the infant responds consistently to the

same stimulus over a period of several weeks. For instance, the persistence of the tonic neck reflex beyond the first six months of the child's life is evidence of pathology of the central nervous system. His inability to lift his head midline from the supine position is an additional manifestation of abnormal development at the age of 6 months.

Because of the physical therapist's trained powers of observation she detects early postural deviations. For example, a 6 month old baby recovering from extensive burns to his arms and hands only, may be referred by the attending physician to the physical therapist for prolonged treatment. When the therapist places the infant in the prone position she may observe during the weeks of treatment the two phenomena described by the famous orthopedic surgeon, Denis Browne,[4] i.e., that the baby bends his trunk habitually to one side and that no method of stimulation will cause him to bend his trunk readily to the opposite side; further, in forced bending to one side a definite difference may be noted in the appearance of the right and left sides such as transverse wrinkling on the concave side. If the physical therapist observes these habits in this baby's posture and reports them to the physician it may make a difference between the physician's diagnosis of a congenital postural scoliosis, which can be corrected readily by the proper body splint and other measures in the pre-walking phase of the baby's life, and an untreated and intractable deformity.

If we are alert to normal pediatric development we will not expect the child, with a complete recovery from poliomyelitis who is age 4 to 5 years to be able to perform more than a "fair" test and one who is age 6 to 10 years more than a "good" test of the abdominal muscles.[5] These tests of muscle strength are within normal limits for children who have not suffered any disease affecting the integrity of their abdominal muscles.

Before treating the child, we, of course, need to know a child's medical condition. We also need to know significant psychological factors which might either complicate or enhance the healing process of the child. But what we physical therapists very much want to know before we start to treat children is *what they can do* when we first see them. Else, what basis do we have for stating sometime later "that the child has shown marked improvement" and what do we mean by "marked improvement"? As professional people who work with infants and children we do need to keep accurate progress reports of the children we are treating. These reports should include not only measured increase or decrease of joint range of motion but also strength of muscles and motor behavior and should be recorded on a formal chart. It would be revealing to include in such a report the child's attitude toward people, his parents, playmates, and also to his program of physical therapy.

In the Cerebral Palsy Department at the New York State Rehabilitation Hospital in West Haverstraw, New York, the occupational therapists and physical therapists on the staff have devised a simple yet comprehensive and effective functional test for the infant and young child with cerebral palsy, based on Gesell's principles of child growth and development.[6] An adaptation is used in the Handicapped Children's Service in the District of Columbia, Department of Public Health. While it was particularly designed for the young child with an upper motor neuron lesion, it is a sound means of evaluating the motor behavior of any person under 6 years of age for whom physical therapy has been prescribed.

This functional test (Fig. 1.) given at periodic intervals from birth to age 6 years discloses the competition of the individual child with himself, for a child is his own best norm. The following quotation supports such a concept: "If one's own state is felt to be valuable, should not comparison with oneself in performing activities be a better incentive than comparison with others and, if so, should not this guide our educational procedures?" [7]

Perhaps a similar functional test including both motor and social behavior could be prepared by occupational therapists and physical therapists, together with social workers and teachers, which would be suitable for the child from age 6 to 12 years. It would seem that such a technic of evaluation together with the accepted manual muscle tests might well be used by physical therapists who are working with elementary and intermediate school children whose physical fitness is now under considerable scrutiny. It has been stated by Laura K. Smith that "most fitness tests rule out the unfit but do not differentiate degrees of fitness since the ultimate test may be the activity itself." [8]

Physical therapists have much to offer physicians in helping them to establish a diagnosis.

CORRELATING PHYSICAL THERAPY TREATMENT WITH MOTOR AND SOCIAL BEHAVIOR

Technics of the therapeutic exercise and other kinds of treatment are exhaustive subjects in

themselves and have no place in this discussion. It is, however, appropriate to comment here about the prescription. Physical therapists are totally dependent upon the specificity of the referring physician's prescription, i.e., objectives of treatment, type of treatment and precautions to be observed, the home or school follow-up of treatment, and the rationale for continuation of treatment. The physical therapist needs to assume responsibility for seeing that all the components of treatment are indicated on the prescription.

The first objective of the physical therapist in treating young children is to help them, guided by pediatric physiology and maturation, to restore use and to minimize the appearance of the disability. The second and equally important objective is to contribute to the development of a wholesome personality during the physical restoration process which may continue over months or years. While we are treating the withered limb we must not forget the bright eyes and merry laugh which almost all of our little patients displayed before they were stricken.

Children with congenitally disabling conditions such as cerebral palsy have never known any other than their present kinesthetic experiences and indeed may be unaware that they may look or speak differently from others; on the other hand, most children with one or more acquired disabilities have experienced the joys of a totally functioning and socially acceptable body. For the young child his body is his personality. When he runs races, jumps hurdles, skis, or climbs hills his legs "become his personality" even as our palates "become our personality" temporarily when we eat a tender, juicy steak. Have you realized the full implication of the fact that no one, child or adult, can express himself (personality) except through (the action of) his muscles? Gesell and Amatruda have expressed a similar concept in relation to pediatric ambulation. "A man may still walk without much difficulty after losing proper use of several muscle groups normally used in walking. In infancy, it is a period when motor functions are in process of development and functions are being integrated into skills. Motor disability not only impairs motor function but the infant's ability to develop motor functions. The same disability which merely affects the adult's gait may delay the acquisition of walking for years." [9]

To illustrate the first objective of the physical therapist, namely, restoration of function, some comments on posture are in order. Postural attitudes are influenced by cultural and social environment. An example is the contrast in the concept of dynamic posture in the oriental versus the occidental dance. In the young child postural changes are determined by the maturation of the nervous system. We know that the behavior of the nervous system of the normal child develops in the same orderly way that other systematic components of his body develop. We know a good deal about the daily requirements of young children in regard to sleep, food, rest periods, and activities requiring the use and coordination of big muscle groups. If all these ingredients of normal growth are made available to young children in an atmosphere pervaded with kindness, humor, and a philosophy of growth, both at home and at school, girls and boys are bound to reflect socially acceptable attitudes of mind and body posture. The child who presents a functional defect of posture should not become the concern of the physical therapist but rather the concern of the family physician, parents, public health nurse, teacher, and often the social worker because these people can control or change the environment which seems to be mitigating against the normal growth process and postural attitude of the child.

The young child who presents a structural defect of posture such as structural scoliosis becomes the concern of the physical therapist as well as the other people mentioned who are influencing his environment. First, physical therapists need to study and understand sound current technics of treatment of the young child's structural scoliosis and decide which school of thought they will accept and then apply it consistently in the treatment. Our little patient must become involved at the very first treatment session with the immediate and long range purpose of treatment. This challenges our imagination and resourcefulness in motivating our patients and preserving a wholsesome attitude in them throughout the many months of treatment. We are told that emotions grow in the same sense that perceptions, judgments and concepts grow and mature. Children with structural scoliosis are growing children and so have emotional as well as motor "growth days" of turmoil followed by calm. When we are secure in our knowledge of pediatric behavior we shall recognize the days when our little scoliosis patient seems to be "just plain ornery" as "growth days" and we will modify the treatment and expectations of cooperation from him accordingly. Here the element of surprise will delight him. We can do such a simple thing as change the order of the exercises or eliminate a certain exercise and

Age Level	Items	Age Level	Items
3 Months		**12 Months**	
Prone	1. Head compensates when held in ventral suspension	Posture and Locomotion	28. Assumes and maintains kneeling balance
	2. Lifts head when resting on forearm		29. Pivots in sitting
	3. Initiates rolling to supine		30. Cruises at rail
	4. Head rotates and extends		31. Walks with one hand held
Supine	5. Symmetrical head and arm posture	**15 Months**	
	6. Rolls part way to side	Posture and Locomotion	32. Walks alone several steps
Supported Sitting	7. Slight head lag when pulled to sitting		33. Falls by sitting
	8. Head steady		34. Creeps or hitches upstairs
Supported Standing	9. Bears small fraction of weight on legs briefly		35. Rises to standing independently and walks
6 Months		**18 Months**	
Prone	10. Legs and arms extended, weight on hands	Posture and Locomotion	36. Walks alone, seldom falls
	11. Lifts arm with stimulation		37. Upstairs with one hand held
	12. Rolls to supine		38. Seats self in small chair
	13. Brings one knee forward beside trunk, doesn't lift abdomen	**21 Months**	
	14. Circular pivoting	Locomotion	39. Upstairs holding one rail
Supine	15. Lifts head		40. Downstairs, with one hand held
	16. Rolls to prone		41. Squats in play
Supported Sitting	17. Lifts head and assists in pull to sitting	**2 Years**	
	18. Holds head erect when leaning forward	Locomotion	42. Runs fairly well
	19. Head active in supported sitting		43. Upstairs and downstairs alone
	20. Sits momentarily, leaning on hands		44. Kicks in standing
Supported Standing	21. Bears large fraction of weight on legs and bounces	**3 Years**	
9 Months		Locomotion	45. Walks on tip toe
Prone	22. Assumes hand-knee creeping position		46. Runs on toes
	23. Creeps on all fours or hitches on buttocks		47. Rides tricycle
Sitting	24. Sits indefinitely unsupported		48. Jumps on both feet
	25. Assumes sitting without assistance		49. Upstairs, alternating feet
Standing	26. Pulls to standing at rail or furniture		50. Momentary one foot standing
	27. Lowers to floor at rail or furniture	**4 Years**	
		Locomotion	51. Downstairs, alternating feet
			52. One foot standing balance 4-8 sec.
			53. Skips on one foot
		5 Years	
		Locomotion	54. Skips with alternating feet
			55. One foot standing balance, 8 sec. plus
			56. Walking board—full length
		6 Years	
		Locomotion	57. Jumps from height of 12", landing on toes
			58. Stands on alternating feet, eyes closed
			59. Advanced throwing

Figure 1. Functional activities as based upon Gesell's principles of growth and development. Scoring of various tests is not shown.

put that day's attention on a new activity that will support the specific exercise.

With the 3 year old child who has sustained a brain injury from an automobile accident we may be asked to help him relearn what he once knew, i.e., how to walk. At this age, he is too young to know his right foot from his left, so we help him with reciprocal movement of the lower extremities and foot placement by putting a different colored shoelace on each shoe. Three months later if he has mastered walking and is ready for more intricate balance work we prob-

ably would not try to accomplish this by having him play an unmodified game of hop-scotch with a small group of children for two reasons. Even normal children at this age are able to stand only momentarily on one foot and do not play too readily in a group.

We know that the normal child does not need to be taught how to walk. In fact no one *teaches* the normal child how to crawl, creep, stand, or walk. *We provide him with the opportunity to do his own learning* in ambulation. This is the reason that the child who may have suffered a traumatic midthigh amputation at age 12 months is soon provided with a prosthetic stump so that his tactile sense will receive stimulation through creeping and crawling. He will then learn to "cruise" and finally to walk. Thus the child is given opportunity to learn the various "steps" leading to eventual walking with an A-K prosthesis *at the time when he is most motivated* to attempt walking. Again, the normal infant-child learns to eat by using his hands and fingers to pick up food. He does not learn to eat by using a spoon at first. This is a later and more refined learning. Knowing this, the infant-child, who may have lost an arm in an electric wringer accident, is fitted with a prosthesis with an appropriate clamp for holding a piece of buttered bread or slice of apple which he would normally grasp at this age. Later the component parts of his prosthesis would be adjusted to the child's needs as his behavior grows; the physical therapist would provide him with opportunity for practice of finer control of grasp, release, supination, and promotion of his prosthesis for eating skills and play activities appropriate to his developmental maturation.

We may be asked to treat a 9 year old boy with a spinal cord injury due to a hunting accident. Provided that this boy has not suffered a deep psychological trauma due to the circumstances of the accident, we can expect him to have many good qualities at this age that will enable him to work hard toward ambulation and his own physical rehabilitation. What are some of these attributes? He is reasonable and responds to instruction and has developed enough initiative to work toward an objective. He is interested in perfecting skills by repetition without early boredom. He can laugh at himself. He enjoys lifting heavy objects. He likes to display his skill but has a tendency to work to the point of exhaustion. He works well in a group of boys his own age or a little older. He has outgrown the close tie with his mother. When we know these general characteristics of the 9 year old boy it will help us plan an intelligent program of neuromuscular facilitation to elicit movement in the lower extremities and progressive resistance mat work to develop the strength of the upper extremities in preparation for eventual ambulation. It is the grave responsibility of the physician, nurse, physical therapist, and teacher not to destroy the natural wellspring of motivation of children in this or any other age zone who have a long road of such rehabilitation procedures ahead of them. There is a true story of a 10 year old girl with paraplegia, who had received intensive preparation for ambulation. She was the only one of five children to escape from being burned to death by climbing through the lower window of her burning home. She had learned the components of trunk balance, crutch placement, the swinging through gait, and other ambulation skills by repetition so that the necessary maneuvers to escape through the window in such an emergency had become an unconscious effort—a true test of one important objective in rehabilitation.

We know that affection and security are two basic hungers in children. We are told that disfigurement and loss of motor power have much less impact on the security and motivation of the very young child than hospitalization, separation from the family, and restriction of mobility. It is not the responsibility of the physical therapist to determine that certain aspects of the child's individuality are directly a result of nature or nurture—heredity or environment. But we do bear a responsibility for creating and maintaining as wholesome an environment as possible for children who are entrusted to our care wherever it may be—in hospital, treatment center, school for handicapped children, private office, or in the home.

Regarding the influence of affection, security, and various environmental factors on the younger child's personality, the following considerations are offered to physical therapists. *Do* we *always* allow time for giving the baby and infant-child patients in hospital a dose of tender loving care at each treatment session? Do we try to give the 2½ year old child with a fractured leg her treatment during hospital visiting hours when mother can be there? Do we insist on placing the 7 month old amputee in the supine position to train him in the use of his infant passive hand and continue to meet with resistance and defeat because we do not know that an infant at this age is happier in the sitting position which achievement he has been struggling to accomplish since birth? Can we imagine the fear of the young child who has recovered from a severe

burn caused by boiling water and is about to have his first whirlpool treatment—the agitated water, the deep shiny tank, the terrifying noise of the ejector? You may be interested to know that in one of the new children's hospitals in our state a new, commercially manufactured whirlpool, built especially for children, made so much noise that the ejector had to be removed and replaced by the old fashioned type ejector, connected to the faucet, before small children would take their treatment. Do we realize that children are sensitive to our facial expression, tone of voice, and touch of our hands, and that they may respond to treatment either positively because of us, or negatively sometimes in spite of us? Do we explain to parents that for young children work is play and play is work and that they need to gage their disabled child's play-work to his physical *ability?* Do we remind parents that "success breeds success" in children as well as in adults, and that they need to be sure that their disabled child has at least one successful play-work experience every day? Do we carry out the principle in our treatment that tolerance for failure is best taught through providing a backlog of successful experiences? Do we treat disabled children like well children and encourage parents to have them engage in normal life experience such as *going* to school instead of *receiving* home instruction? Do we help the 8 year old child amputee in shool to anticipate the curious stare and perhaps cruel remarks of his schoolmates and make some suggestions to his parents regarding the way he can meet these eventualities? Perhaps we could help him become a little hero instead of a young dictator by suggesting that he demonstrate to his teacher and classmates how his prosthesis is made, looks, and works. Incidentally, Bechtol states that child amputees under age 12 have neither "phantom limb" nor "phantom pain" [10] so that in treating the young child the physical therapist is spared having to cope with this bifurcated problem.

Finally, we who work with disabled children need to take stock of ourselves every once in awhile to see if we still possess a lively sense of humor and a keen perception and understanding of normal children. Some physical therapists have elected to teach a Sunday School class or participate in either boy or girl scout activities or summer camping programs to help preserve their perspective of the growing child.

For Every Child

"Music of wind in the forest, soft sward of the meadow,
Snow-covered hills and quiet valleys,
Sea gulls in flight, white heron in the marshes,
Sunlight through yellow leaves, mystic beauty of flowers,
Warm sun and pure air and vigor of growing bodies,
Love of parents and family joys and sorrows,
Carefree play and simple tasks of daily life,
Treasures hidden in books, ecstasy of expanding thoughts,
Thrill of achievement and strength from undaunted failure,
Faith in the Power guiding the universe,
All were created
For Every Child."

From *Unto the Least of These* by Emma Octavia Lundberg. Copyright, 1947, D. Appleton-Century Co., Inc., Reprinted by permission of Appleton-Century-Crofts, Inc. P. 401.

Credit is given to Clara Arrington, Physical Therapy Consultant, United States Children's Bureau for editorial assistance.

References

1. A Healthy Personality for Every Child. A digest of the Fact Finding Report to the Midcentury White House Conference on Children and Youth. Health Publications Institute, Inc., 1951. p. 128.
2. Gesell, Arnold, Ilg, F., Ames, Louise Bates: Youth—The Years from Ten to Sixteen, Chapter Six, p. 110, Harper and Brothers, Publishers, New York, 1956.
3. Zausmer, Elizabeth: Evaluation of strength and motor development in infants, *Phys. Ther. Rev.*, 33: 576-579, November (1953).
4. Browne, Denis: Congenital postural scoliosis, Proc. R. Soc. M., Lond. 49:395-398, July (1956).
5. Jacobs, Miriam, Kolb, M. E., Kelly, K., Wright, Jessie: An Abridged Method of Muscle Testing for the Patient with Early Poliomyelitis, D. T. Watson School of Physiatrics, Leetsdale, Pennsylvania, affiliated with the University of Pittsburg School of Medicine, 1953-54, p. 12.
6. Miller, Anne S., Stewart, Marjorie D., Murphy, Mary Alice, Jantzen, Alice C.: An evaluation method for cerebral palsy, Am. J. Occup. Ther., 9:105-111, May-June (1955).
7. Adjustment to Misfortune, Artificial Limbs A Review of Current Development, Prosthetics Research Board, National Academy of Science National Research Council, Autumn 1956, p. 41.
8. Smith, Laura K.: Exercise for Endurance, The Correlation of Physiology with Therapeutic Exercise, A.P.T.A.-O.V.R. Institute Papers, April, 1956, p. 15.
9. Gesell, A., Amatruda, Catherine S.: Developmental Diagnosis, Paul B. Hoeber, Inc., New York, 1948, p. 203.
10. Bechtol, Charles: Upper Extremity Biomechanics Workshop, University of Connecticut, Storrs, Connecticut, June 25-29, 1956.

Suggested Reading

1. Lenroot, Katherine and Lundberg, Emma Octavia, "For Every Child," Unto The Least of These, D. Appleton-Century-Crofts Co., Inc., New York, 1947.
2. Gesell, A., Halverson, H., Castner, P., Amatruda, C.: The First Five Years of Life, New York, Harper and Brothers, 1940.
3. ———, Ilg, F.: Infant and Child in the Culture of Today, New York and London, Harper and Brothers, 1943.
4. ———, Ilg, F.: The Child from Five to Ten, Harper and Brothers, New York, 1946.
5. Skinner, Charles E.: Educational Psychology, Prentice-Hall, Inc., New York, 1937.

Law for Physical Therapists

Helen Creighton, A.M., J.D.

EDITOR'S NOTE: The author has prepared a series of brief articles which present several aspects of law as it applies to physical therapists and their profession. The series will be presented in this and the following five issues of the *Review*.

Helen Creighton received the master of arts degree from the University of Michigan and the doctor of law from George Washington University, Washington, D. C. in 1942. She worked as a lawyer in the Department of Internal Revenue and in the private practice of law. Upon retirement from the legal profession, Miss Creighton entered Georgetown University School of Nursing, graduated in 1953, and received the bachelor of science degree in nursing in 1956. She is a member of the American Bar Association, the American Nurses' Association, and the National League for Nursing. Miss Creighton is the author of numerous legal articles and *Law Every Nurse Should Know*, published by W. B. Saunders, Philadelphia, in 1957.

Part I.

Although in the ordinary way a physical therapist can do his job without having to concern himself with the law and legal principles, there are times in the course of professional life where a knowledge of the law is useful. The aim of this series of articles is to give a physical therapist as a member of the medical team a rough idea about the law in relation to his legal responsibilities, i.e., when important questions may be involved and when possible legal worries may be ignored. In any case of real difficulty or doubt the advice of an attorney should be sought, for in this field as in any field of endeavor a little learning can be a dangerous thing. However, if the point is simple these articles may help you to decide a proper course of action. In most situations the physical therapist will find that if he acts with common sense and fairness he will have nothing to fear from the law. The following is a rather rapid survey of certain aspects of the law with some practical suggestions for the consideration of physical therapists.

Definition

We might begin by saying what we mean by law. The law may be defined as a set of statutes, regulations, and precedents made for the welfare of the people. It is not possible to exist in an ordered society without certain responsibilities, particularly in our everyday activities. The law supplies us with the power of the sovereign authority to command performance of what is right action and to forbid what is wrong action and in this way to carry out a control over conduct. It is applicable to all in the community. Law keeps the balance between individual freedom and social duty.

A law must be written. A law must be enforceable—that is, it must have the power to compel us to follow the right or we suffer the consequences.

Purpose

The chief purpose of the law [1] is to promote the general good by protecting the individual from other individuals, groups, or the state, and vice versa. The law strives to achieve such purpose by defining rights and duties between individuals and groups. For example, take the case of a physical therapist who drives his car to work. As a motorist the physical therapist enjoys a reasonable measure of freedom in his automobile because of the restrictions imposed on all motorists. It is only by placing restrictions that liberty, freedom, and efficiency can be made certain. Rights and duties are important legal relationships, and legal relationships are the subject matter of law.

Legal rights

What do we mean by the term "legal right"? The term, legal right, is defined to mean that which a person is entitled to have, to do, or to receive from another whose duty is imposed within the limits prescribed by law.

Primary rights are those arising as a consequence of a person's existing as a member of society; in the United States a citizen's person

and property are inviolate. Corresponding to that primary right is the duty all others owe him: to respect it. You are familiar with the expression, "law of the land"—it means that every citizen shall hold his life, liberty, property, and immunities under the protection of general rules which govern society. Such rights may not be properly infringed without a hearing and inquiry before judgment at trial. A violation of such right is considered a civil wrong, a tort, or a crime depending upon its magnitude and also upon what the statutory law declares it to be. Negligence, libel, slander, and trespass are commonly examples of civil wrongs or torts.

Secondary rights arise as a result of contract. They are additional rights as a consequence of individual decision and action. They are held against a particular person or persons. An example is the employment contract of physical therapist X with Hospital Y.

In addition there are remedial rights. A remedy is the means by which a right is enforced.[2] On the violation of the legal primary or secondary right, a remedial right comes into existence. Such a right is held against the person who committed the legal wrong. "A remedy is the appropriate form of relief by which that remedial right may be enforced." [3]

With these few remarks on a "definition of law," the purpose of law, and what we mean by "rights" and "remedies," let me consider with you the law that pertains to all people because they work. Physical therapists like nurses and physicians belong to a broad category of people who work and in the course of so doing relate in various ways to other people and their property.

Part II. Physical Therapists' Licensure

Functions, standards, qualifications

First of all I think we must note that a tremendous increase in interest in the field of law has been evidenced by people and by workers in general. Wages, hours, workmen's compensation, and Social Security, to mention but a few items, have all been the subject of recent legislation and actual cases in the courts. Within the newer professions as a whole, important movements are under way, a significant one of which is drafting functions, standards, and qualifications of practice. Bylaws II a, b and III § 1, 2, and 5 of the American Physical Therapy Association,[4] the Requirements for Membership in the American Physical Therapy Association, and the Code of Ethics of the Association illustrate your concern with functions, standards, and qualifications of physical therapists. Such articles as Catherine Worthingham's "The Physical Therapy Student" [5] and Col. Harriet Lee's, "The Physical Therapist—His Professional and Social Responsibilities" [6] in the *Physical Therapy Review* of January, 1957, reflect further thinking on the subject.

Moreover, "Essentials of an Acceptable School of Physical Therapy" [7] set forth criteria or specific rules for schools of physical therapy. Such efforts illustrate one endeavor to secure that type of physical therapist deemed at minimum as consistent with the safety, general welfare and health of the people, through regulating the school which prepares him.

But lest the importance of such matters to you seem a bit remote, let us pause for a moment. Throughout the law you will find frequent reference to a yardstick for evaluating a man's actions stated: "What would an ordinary, reasonable, prudent person do under similar circumstances?" Possibly if you will look through "legal eyes" at these essentials of an acceptable school they may take on "a new look."

Your work

To begin with we must clarify in a few words what we mean by physical therapy and the work of a physical therapist. Perhaps you will agree with me that it is the use of physical agents and principles to assist in preventing, restricting, or reversing pathological conditions. That in essence it is auxiliary to other therapeutic measures of a medical or surgical nature. In a broad sense physical therapy is a part of rehabilitation which begins the day the patient is injured or becomes ill and continues until he returns to fill his productive role in society. However in the practice of his profession, the physical therapist customarily begins his task in a hospital or similar institution. Later his work may be carried on in some type of rehabilitation center or its equivalent before the patient is able to resume his role in the productive community.

Your education and training

If this brief general statement is true, we proceed to consider the type of school and education which is established to prepare a physical

therapist for such work. Returning to the "Essentials of an Acceptable School of Physical Therapy," we note that such school shall be established only in medical schools and hospitals approved by the Council on Medical Education and Hospitals of the American Medical Association; that the school have a regular budget; that the administrator of the hospital or university be responsible for this school. Then follow details of faculty qualifications (education, experience), training facilities (library, equipment, clinical practice), administration, requirements for admission, and publications. Lastly we read over the curriculum (applied sciences, procedures, physical therapy as applied to medicine, neurology, orthopedics and surgery, ethics and administration, electives, and clinical practice) and note how a school is admitted to the approved list. In other words in view of the desired professional product, do not these specified essentials of the school appear ordinary, reasonable and prudent preparation—which, of course, you have.

In any civil case involving a physical therapist, a lawyer is apt to say very simply: 1. What caused the wrong complained of? 2. Who did it? 3. Did the physical therapist act as an ordinary, reasonable, prudent physical therapist in similar circumstances? Then the physical therapist is perchance a bit amazed at the careful analysis of many factors such as the nature of his work, his education, his experience, etc., which may bear on the matter of "his reasonableness."

Licensing

A consideration of a professional man's education and training for his calling logically leads up to his licensure. The licensure of physical therapists is a function of the state government under the police power of the sovereign state.

Since many times people appear somewhat puzzled as to why the state rather than federal authority issues such licenses, perhaps a few words to refresh your recollection of federal, state, and local relationships are in order. We must remember that the United States is a union of 48 independent states which by the Federal Constitution granted certain rights to the national government. In other words the federal government has only those powers and duties which the states have given it, and under the prevailing interpretation of the Constitution by the Supreme Court it cannot take additional rights. The states are the ultimate repository of power and retain for themselves all rights not specifically delegated to the federal government. One of the many powers of a state is the right to provide for local government. Thus local units of government are created by the state and again certain powers may be delegated to the local government. Perhaps this brief reminder clarifies the licensure of physical therapists as a function of the state government. More than half the jurisdictions have licensure laws for physical therapists.

"In general, a license is a legal document that permits a person to offer to the public his skills and knowledge in a particular jurisdiction, where such practice would otherwise be unlawful without a license." [8] A license to a physical therapist is granted by the appropriate authority to applicants who have fulfilled certain established requirements. The rules for licensing are created by statute, and in the application of such law there must be no discrimination, arbitrary action, or improper pressure.

A legally registered physical therapist has the privilege of using the abbreviation "P.T.," "R.P.T.," or "L.P.T." after his name. Since a registered physical therapist may or may not be a licensed physical therapist, in the interest of clarity and to save confusion and misunderstanding in the minds of the general public, it would seem desirable to legally protect the use of one abbreviation which could be used only by those who are licensed physical therapists. For example, in the nursing profession the legal abbreviation R. N. is protected and only the licensed registered nurse may use it.

Licensing is an important method of legal control and enforcement today. The purpose of professional licensing "is to secure to society the benefits that come from the services of a highly skilled group and on the other hand, to protect society from those, who, being highly skilled, are nevertheless so unprincipled as to misuse their superior knowledge to the disadvantage of the people." [9]

Illustrative cases

In a New York case a proceeding was brought to review a final determination by the Board of Regents of the University of the State of New York suspending the petitioner's license as a physical therapist and registration for one year. There was evidence that the petitioner knowingly aided and abetted an unlicensed person to practice physical therapy. It was held that such misconduct was properly determined as fraud and deceit in the practice of his profession and the discipline was within the jurisdiction of the Board.[10]

In another case the defendant who was licensed

to practice physical therapy was authorized to treat patients in the manner prescribed by written prescription of a licensed physician. There was evidence which tended to establish that he treated the complaining witness for rheumatism or at least for her complaint without supervision of a duly licensed physician or a physician's written prescription. In a prosecution for illegal practice of medicine, it is no defense that defendant acted in good faith, or did what was customary. The statute was held not to authorize one licensed to practice physical therapy to make examinations of patients and report results to a licensed physician over the telephone and to act on the physician's verbal instructions until the physician arrives.[11]

Your interest in legal regulatory measures

The profession of physical therapy is committed, as is indeed every profession, to the licensing of all who practice, for it is only through such compulsory licensing that complete protection of the public is assured. Legal control over a profession for which education and skill are requisites to adequate performance is based on the police power of the state to protect its people from incompetent and fraudulent practitioners; for genuine legal control, mandatory not permissive laws are needed.

To this end each physical therapist as well as the American Physical Therapy Association should be interested in a legal definition of the professional physical therapist which would adequately set forth his functions and qualifications and standards for his licensure. Such definition should be realistic in the light of present practice yet have sufficient flexibility to permit normal modifications with the passage of time

Today in some quarters the term "physical therapist" is loosely used to cover a tremendous variety of persons: masseurs; assorted technicians trained, partly trained, or those with little training; "aides"; "students"; physical therapists who are graduates of nonapproved schools; and the professional qualified and/or licensed physical therapists. Obviously the one who suffers most by inclusion in this heterogeneous grouping is the professional qualified and/or licensed physical therapist. Hence, it would seem desirable and advantageous that the professional qualified and/or licensed physical therapist should not merely insist on his full title of qualified and/or licensed physical therapist but also carefully educate the public wherever and whenever opportunity presents itself as to the meaning of qualified and/or licensed physical therapist.

Moreover, the individual physical therapist as well as the American Physical Therapy Association must be interested in laws setting forth standards for licensure and for its revocation for cause; laws setting forth educational requirements and accreditation of physical therapy schools. A lack of supervision over the training and education of physical therapists simply delays the acceptance of physical therapists as a professional group and assuredly delays the confidence the public has in the training and education of physical therapists.

It is this writer's opinion that the continued legal enactment of licensure laws and related regulatory measures is desirable since the great purpose of these laws is to protect the public by licensing to practice those whom the state approves as competent and to prevent from practicing such as cannot be approved. Uniformity between the various states to a large extent can be achieved by voluntary cooperation and by adoption throughout the United States of what the profession defines as the functions of a physical therapist, necessary preparation and training, and necessary testing to determine his competence to practice.

Next Issue: CONTRACTS.

Sincere thanks are expressed to Miss Clara H. Arrington, Physical Therapy Consultant, Division of Health Services, Children's Bureau, Department of Health, Education and Welfare; and to Dr. Charles Shields, Associate Dean of the Medical School and Professor of Physical Medicine and Rehabilitation, Georgetown University, for reading the manuscript and offering much valuable assistance. The interest and help of Miss Florence Presley, Chief, Physical Therapist, Department of Physical Medicine and Rehabilitation, Georgetown University Medical Center, is also gratefully acknowledged.

REFERENCES

1. Gurvitch, Georges: Sociology of Law, New York, Philosophical Library and Alliance Book Corp., 1942.
2. *Atchison & N. R. Co.* v. *Baty*, 6 Neb. 37, 29 Am. Rep. 356 (1877).
3. *Ebner* v. *Haverty Furniture Co.*, 138 S.C. 74, 136 S.E. 19 (1926).
4. Bylaws, American Physical Therapy Association, N.Y., 1934.
5. Worthingham, Catherine: The physical therapy student—his selection and education, *Phys. Ther. Rev.* 37:21-27 (1957).
6. Lee, Harriet S.: The physical therapist—his professional and social responsibilities, *Phys. Ther. Rev.*, 37:27-31 (1957).
7. J.Am.M.Ass., 141:1169-1170 (Dec. 17, 1949).
8. Creighton, Helen: Law Every Nurse Should Know, Philadelphia, W. B. Saunders Co., 1957, p. 10.
9. Miller, Justin: The Philosophy of Professional Licensure, Proceedings of the Annual Congress on Medical Education, Licensure and Hospitals, Chicago, Feb. 12-13, 1934.
10. *O'Neill* v. *Board of Regents of the University of State of New York*, 272 App. Div. 1086, 74 N.Y.S. 2d 762 (1947).
11. *People* v. *Mari*, 260 N.Y. 383, 183 N.E. 858 (1933).

Physical Therapy for Muscular Dystrophy Children

Martha J. Wratney, M. Ed.

Introduction

Over a period of 3 years, [illegible] muscular dystrophic children, by their "way of life," contributed to the facts and questions stated in this article. These patients, between the ages of 2 years and 16 years, were evaluated and treated in the Department of Physical Medicine, Children's Hospital of Pittsburgh. This muscular dystrophy physical therapy program* was under the direction of Dr. John S. Donaldson, orthopedic surgeon, and carried out in conjunction with a research program. These patients were in various stages of physical disability. Some had no muscle weaker than an F grade and were still climbing stairs, while others were completely incapacitated and grotesquely deformed by severe contractures. As new patients were tested and observed, and old patients retested and checked on a physical therapy routine, certain clinical manifestations became evident and many questions were raised.

Muscle Testing

A physical therapist's first approach to a muscular dystrophic should be by way of a manual muscle examination. The test should be done in slow, easy stages; there should be frequent rest intervals and, when possible, testing should be done on two different days. Muscular dystrophics fatigue quickly—merely turning and lying in an unaccustomed position will induce generalized fatigue—and they do not recover as quickly as other types of patients. The affected muscles of these patients seem to be capable of one maximum contraction only, then strength fades. It was found that if three contractions were attempted muscle power would fade from a G plus to F plus, or from F to P plus. Following a rest period the muscle would return to the higher rating. Perhaps there is an element of value in determining the fatigue point of a muscle in muscular dystrophy by manual resistance, but this factor was not pursued during the program. For the purpose of uniformity and as high a degree of accuracy as possible, only one contraction should be used for determining the muscle grade. If for any reason the examiner is not sure of the grade, the muscle should be allowed to rest before another grading is attempted. Subsequent examinations must be done by the same examiner at six to ten month intervals. Any improvement noted on the second examination should not be taken as significant of any gain in actual strength. It can generally be attributed to the patient's familiarity with the testing routine and, if he has been on a physical therapy regime, to a better control of his muscle action.

Since the muscular involvement becomes almost bilaterally symmetrical, a patient's rate of decline may be easily noted on a graph. With muscular dystrophics decline is characteristically slow, and the entire musculature must be taken into consideration. Gradings were turned into numerical values according to the scales shown in figure 1. Muscles were then grouped as shown in figures 2 and 3. This grouping was decided upon because of similarity of action and involvement. The figures in the graph represent the average for the left and the right side.

As more and more muscle tests were completed certain facts became evident. Muscular dystrophy begins so uneventfully that often wide spread involvement—though to a minor degree—is present before the family realizes any weak-

Grade	*Numerical Value*
N	100
N−	90
G+	85
G	75
G−	65
F+	60
F	50
F−	40
P+	35
P	25
P−	15
T	10
N.P.	0

Figure 1

Formerly, Head Physical Therapist, Department of Physical Medicine, Childrens Hospital of Pittsburgh, Pennsylvania.

* Aided by grants from the Muscular Dystrophy Associations of America, Inc.

ness is present. The tests indicated, however, that latisimus dorsi, neck flexors, deltoid, and the pelvic girdle were among the earliest involved. Finger and toe flexor groups, gastrocnemius and serratus anterior appear to be the last groups of muscles affected by this disease. In time they become involved, nevertheless they continue to test normal after the rest of the musculature shows some involvement. They will remain correspondingly stronger than other groups as the disease progresses. At the time of their initial testing all of the patients showed involvement in many muscle groups, so it has not been possible to determine exactly which muscles are affected first. It was also evident that there is a fairly rapid decline in power between the grades of N and F—, but once the grade of approximately F — is reached, the rate of decline slows down. It would appear that a plateau had been reached, but muscle tests indicate an added loss of power. An intensive study of muscle evaluations would have to be made to correctly graph this theory; ours was merely an observation.

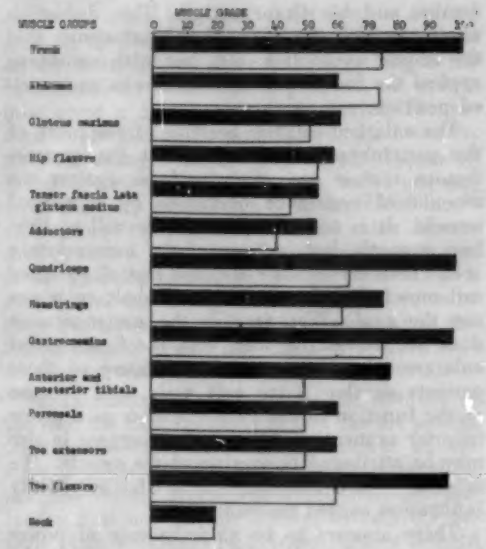


Figure 1.

OBSERVATIONS ON MUSCLE FUNCTION

The gastrocnemius muscle of itself presented many problems. It was assumed that patients still ambulatory could perform a weight-bearing test; failure to complete this test should be indicative of a below normal gastrocnemius muscle. It was soon realized, however, that because of the peculiar stance, caused by the displaced center of gravity, the muscular dystrophic could not balance himself on one leg to perform the usual test. Thus, most of the testing of this muscle is in a nonweight-bearing position even though its power is greater than that of muscles usually tested in this position. The gastrocnemius muscle in a muscular dystrophic seems to relinquish one of the roles nature intended it to assume, that of giving a thrust or spring to the normal gait, as it takes on another prime job. It becomes such a strong muscle in inversion that it supplants the posterior tibial as the prime inverter in plantar flexion. The toe flexors assist the gastrocnemius with the posterior tibial a poor accessory muscle in inversion. It was difficult to isolate the action of the posterior tibial sufficiently so that an accurate evaluation could be made.

The anterior tibial presents a similar problem, and muscular dystrophics use it more strongly as an inverter than as a dorsiflexor in inversion. After the anterior and posterior tibials have dropped to a P grade or less, complete inversion in plantar flexion is still possible through gastroc-

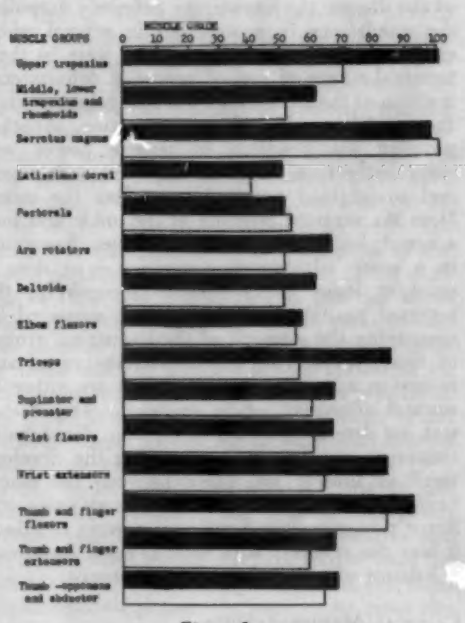


Figure 1.

The solid bars represent the muscle grade of a patient tested May 17, 1955; the hollow bars the grade of the same person on March 1, 1956.

nemius and toe flexor action. This deduction was made after it was noted (by palpating) that the tibials would fade out, but with resistance applied the foot would still remain in an inverted position.

The enlarged calf has become a trade mark of the pseudohypertrophic type, but the gastrocnemius muscle can often perform against the amount of resistance overcome by a normal muscle. It is true that the muscle will in time lose strength, but because of the nomenclature it had been erroneously assumed that all enlarged calf muscles would test below normal; such was not the case. Weakness in the gastrocnemius does not necessarily start with the first sign of enlargement in the calf. Since many of these patients develop a toe gait early, and because of the function of the gastrocnemius as a prime inverter as mentioned, the initial increase in size may be attributed to overuse of the muscle. We could not determine definitely at what stage fatty infiltration caused the bulk.

There appears to be an imbalance of power between quadriceps and hamstrings—with the majority of patients showing stronger hamstrings. It could not be determined at what stage of the disease the hamstrings definitely outpulled the quadriceps in power, but in several wheel chair patients, where the muscles were in their terminal stages of loss of power, a definite contraction of the hamstrings was still palpated while the quadriceps showed no contraction. Another puzzling manifestation of muscle power was noted in the hamstrings. The inner were stronger, and maintained power longer than the outer. Does the inverted position of the ankle and foot account for this, placing the inner hamstring in a more advantageous position — or does a stronger inner group help to account for the inverted position? This might be answered by comparing the strength of the hamstring groups of those whose feet are in extreme varus and inversion against those whose feet are either in normal alinement or in eversion. This factor was not determined with this group. No definite statement can be made regarding the development of muscle imbalance between the elbow flexors and extensors for in some cases the flexor power outlasted extensor power; in others it was the reverse; with several cases there was a balance of power between the groups.

CLINICAL MANIFESTATIONS

Various sources have expressed the opinion that muscular dystrophy does not affect the intelligence of a patient. Some persons feel that any indications of a below-average intelligence quotient can be attributed to the confined world in which many of these children live; however, with many of them, the same sluggishness that manifested itself in their musculature seemed to be evident in their mental responses. No definite tests were made to substantiate this theory, which is the result of observing these children and their general attitudes. Since the disease affects all muscles, the children cannot speak as rapidly as others, and a slowness in word forming could be mistaken for a lack of knowledge. According to their school records, some do have an average I.Q. and it might be interesting to correlate rate of muscle decline with school progress. The fact that a low I.Q. might be only a coincidence cannot be entirely discounted.

In appearance, these patients fall into two groups, those who are thin, almost emaciated looking, and those who are heavy, flabby, and obese. No comparison was made of the relative strength of the two groups, except to note that the majority of those who were still ambulatory belonged to the thin group. Clinically speaking, these muscular dystrophy patients presented striking incongruities. Some who were not ambulatory and spent the entire day sitting did not have tight hamstrings with resultant knee flexion contractures. Others rapidly developed hamstring shortening, and some who were still ambulatory had tighter hamstrings than some who sat all day. There were more contractures among the thin emaciated group, regardless of muscle power and ambulation, than among the flabby, obese group. Some who were no longer ambulatory still had complete active forward flexion of the arms, yet others who were still walking could not raise their arms beyond 60 degrees.

There was great diversity in the gross appearance of the patients' backs. Spines of the patients confined to wheel chairs ran the gamut from ram rod straight to twisted. It may be that the same attitudes that cause unafflicted children to slouch or stand erect cause these children to slump or to sit erect. In the early stages of the disease no imbalance of power was noted between the left and right side of the erector spinae; therefore, the scoliosis could not be attributed to that. The feet of nonambulatory muscular dystrophics ranged from good alinement to an extreme varus position where the external malleoli touched the floor. It is doubtful that severity of the disease is the only factor contributing to this. Many patients soon eliminated shoes and resorted to slipper socks, keep-

ing the footrest on a wheel chair low. In this way the patient spent hours with legs in a frog position—all of which adds to the varus deformity. The strong pull of inverter muscle groups which retain power a long time also contributes to this position. Though the clinical picture (long hours in a static position) would suggest poor circulation, there has never been any evidence of decubitus ulcers forming. In some patients even a slight wound would take a long time to heal, yet no decubitus areas were caused by a static sitting or lying position.

It must be stressed that for permanent and diagnostic records a complete muscle examination should be done; however, it is often expedient to do a quick but accurate muscle test during the patient's clinical visit. Such a modified form of testing has not yet been successfully determined with this group. Except as a supplementary source of record, the use of a mechanical device for grip testing has a doubtful value with these patients since few of them could make an appreciable change in the meter. Older boys whose finger flexors still graded normal made only a grade of 10, or at the most 15 on the gage.

It has been generally accepted that there is no pain associated with the disease until possibly in the terminal stages when the mere weight of the skeletal structure may cause some discomfort. If contractures are severe enough in these late stages, pain may be noticed in the joints. In stretching contractures muscular distrophics complain of pain more readily than children with other types of muscular involvement. This fact might raise the question of whether with a decrease in muscle fibers there is less "give" or "stretch" to a muscle and its tendon. It has not been proven with these patients that those in advanced stages felt pain more readily than those in the earlier stages. All stretching was *gentle and sustained* regardless of the degree of shortening. The rate of contracture can be slowed, but once definite shortening has occurred, it is not possible to get correction completely by stretching. Complaints of pain also were readily forthcoming in the few attempts made at electrical stimulation. Skin resistance was broken down by the application of hot moist towels, and a mirimum of current (galvanic) was applied, but the patient's discomfort was so evident that for the time being further electrical testing was discontinued.

GAIT PATTERNS

Two types of gait have been noted among these children—a toe gait and a flat foot or everted gait. If the foot was everted, the heel remained on the floor. It was observed that as long as the foot remained in a neutral position, no matter how great a degree of plantar flexion, the patient continued to be ambulatory. If, however, the foot changed from a neutral position to an inverted one, the patient experienced more and more difficulty in walking. The degree of inversion seemed to keep pace with the other factors that caused a loss of walking ability, and was more rapid for some than others. Upon the prescription of an orthopedist the shoes of some of these patients were built up (as wedgies) in the line of plantar flexion deformity. This gave added support and retarded inversion.

In all instances, regardless of the position of the feet, the back became "arched" as the patient tried to find his center of gravity for an upright position. His balance is often so precarious that the merest touch will upset him; for this reason it is not wise to attempt to help the patient while walking, i.e., to touch him or to hold him in any way. These children must find their own center of gravity and adjust their balance accordingly; they are the only ones who have any "feeling" for it. Many of them need to hold on to something to maintain that precarious balance. Among the group observed, the most widely used method was to place both hands on the partially flexed forearm of someone walking beside them. Their gait is slow, for it means readjusting their balance as each foot is moved. This moving is actually a swinging forward rather than a stepping forward, and seems to be at an angle. With their balance so finely adjusted it is questionable as to what steps, if any should be taken to correct their gait, or the position of their feet. It is obvious that for those who acquire the toe gait, the triceps surae tendon will shorten. Surgery may be contraindicated for these children because a long period of inactivity in bed will tend to increase weakness. The question has been raised as to whether or not a triceps surae tendon lengthening with correct positioning of the foot might not upset their balance to the point where they would be unable to walk. Recalling the imbalance of power between muscle groups—the gastrocnemius and toe flexors maintaining strength longer than the anterior tibial and toe extensors, and the inner hamstrings longer than the outer—one must also wonder just how long a surgically achieved correction would be retained.

In walking, there is a definite swaying from side to side of the upper part of the trunk

brought about mainly by the weakness of the latissimus dorsi, although weak gluteus medius, abdominals, and erector spinae are also contributing factors. When a muscular dystrophic is in an upright position he will assume a wide stance to distribute body weight as well as to assist in "balancing." Because of lack of muscle power in the back, the body is arched beyond normal limits to maintain extension. It may be assumed that because of lack of power in the pelvic girdle a reverse action of the hamstrings is used to stabilize the hips. The gastrocnemius locks the knee, while the toe flexors strongly contract to grip the floor and keep the body from falling backwards. In assisting a muscular dystrophic child to his feet, it is best to stand directly in front of him. Lock both your hands around his lower back so that as he rises, his upper trunk is free to sway back, as you pull forward near the hips to assist the patient to "lock" his hips. It is sometimes necessary to place a hand over the sacrum and forcibly push the pelvic girdle forward. The earlier caution against assisting these people in walking is to be heeded. The tendency is to hold the upper trunk too far forward, and without the muscle power to counteract the forward pull of gravity, the patient cannot stand erect.

Climbing stairs soon becomes a difficult activity for these children because of the early involvement of hip musculature and a shift in balance. In ascending some can use one rail to help and seem to manage better with both hands on the same side, than when they put one hand on each rail. In descending they use the same technic, i.e., two hands on the same rail, but they actually come down sidewards and backwards. Others will resort to crawling up and down stairs.

It becomes increasingly difficult for these children to get up from a regular size chair. As muscle strength decreases, the height of the chair should be increased. This holds true for getting into a chair too. These children do not lower themselves; they do not have the muscle strength to ease themselves in by well timed synergistic movement, so they do it by the simple expedient of unlocking the knees and dropping into the chair with a thud. One patient was able to get out of a chair by leaning forward with his hands on his knees; by combining motion of trunk forward flexion with pressure on the knees to push them back and lock them, he brought himself to a half standing position. With one hand still on a knee, he used the other arm as a pendulum to swing his body upward into extension. It took a powerful swing for he had to get his upper trunk back past the pull of gravity or he would have landed forward on his face.

Two types of gait have been mentioned, but a patient introduced a third type, the "duck walk." This particular child was thin, with contractures limiting hip extension and the knee could not be extended beyond a right angle, but range of flexion was complete. With the help of two determined parents, he progressed from crawling on hands and knees, to hands and feet, and finally to his feet in duck fashion. He achieved an amazing degree of proficiency in it, even to the point of climbing stairs.

Balance is not only a precarious factor for these patients when standing, it is equally so when sitting. This fact should be emphasized, for it is human nature to assume that a sitting position is a "safe" one. It can be extremely dangerous for a muscular dystrophic. Many children have fallen forward from a sitting position and suffered fractures. In each of four cases, several days after the fall, the child complained only of mild pain upon palpation over a discolored area on the lower limbs. X rays showed fractures, but with no displacement of the fragments. The fact that these children were nonambulatory, with little muscle power remaining in the legs so that there was minimal muscle contraction pulling against the break, could account for the diminished pain. This situation does not contradict the previous statement that muscular dystrophics appear susceptible to pain. It is mentioned here as a caution and a safeguard for these people. Extreme care should be taken while the patient is sitting, and if a fall occurs, X rays should always be taken even though there is little discoloration and swelling and a negligible amount of pain. When these children fall, they are dead weight.

TREATMENT PROGRAM

Regardless of what physical therapy facilities are available to the patient—it is the daily program followed at home that takes on the greatest significance. It also brings to light one of the confusing manifestations of the disease—that of activity and fatigue. It has previously been noted that corrective surgery is not done because long periods of inactivity are detrimental to muscular dystrophics. Patients themselves have indicated that after being bedridden for just two days they find it difficult to "get going again." Parents are urged to discourage long sessions of inactivity and to encourage action, movement, and change of position. On the other hand,

fatigue has proven to be a serious hazard. Somewhere between complete inactivity and even the slightest fatigue is the range in which a muscular dystrophic must pursue his way of life. Though it has been noted which muscle groups show weakness first and which maintain strength longest, the degree of strength and the rate of decline varies with each patient. So it follows that each patient must learn his own faitgue point and stop short of it.

When supervising an exercise routine, care should be taken that no muscle group has to strain to perform a movement. *No resistance other than gravity itself should be used*, and as soon as the muscle shows sign of strain gravity should be neutralized, and finally assistance given to the muscle. Exercises should be done once or twice a day, four to six counts only, avoiding times when the patient may be tired, such as right after school, or late at night.

The following exercises have been beneficial to the group of patients observed.

1. Supine lying a) Arms abducted to 90 degree angle, deep breathing. Retract the abdomen and strive for intercostal breathing.
   b) Straight leg raising from at least a 45 degree angle.
   c) Roll knees back on to chest and hold (to counteract lordosis).
2. Side lying—left and right.
   a) Leg abducted in forward plane.
   b) Leg abducted in posterior plane.
3. Prone lying
   a) Alternative hip hyperextension, with knee straight.
   b) Alternate arm hyperextension.
   c) Back hyperextension.
4. Sitting (or supine)
   a) Alternate arm forward flexion over head, with elbow straight.
   b) Elbow flexed to right angle and held close to side—outward rotation of shoulder.
5. *Gentle, sustained*, stretch of contractures. One stretch only of each contracture during an exercise period.

While working with this group it was not possible to stretch completely any existing contractures. Since patients could not tolerate the "stretch" necessary to accomplish this and the therapists were fearful of causing damage to tendons and muscles, efforts were directed to maintain existing range as much as possible. Exercise (4a) may be done by throwing a ball overhead, or with the use of an overhead pulley. Exercise (4b) can be accomplished by using a shoulder wheel in external rotation. Bicycle riding is a beneficial adjunct to exercises as is swimming. Typing and piano playing have been of some aid to older children. For patients with severe deformity contractures and with little muscle power, active assistive range of motion—within the limitation of contractures—two counts twice a day, is recommended.

Hydrotherapy has proved to be the most beneficial form of treatment. It is given at least once a week under the supervision of a physical therapist,and supplemented at home by the daily exercise routine listed. A 20 minute treatment was found to be satisfactory. If a large tank is available many exercises are possible during the treatment. The group was taught an elementary back stroke, with the arms extending overhead in the water, rather than stopping at shoulder level. In a side lying position the scissors kick was used. Some stretching is also possible. It should be noted here that whenever possible, the canvas slings should be used to support the patient. This will allow more freedom of movement in the water. Plinths may offer a more comfortable and convenient way of placing the patient in the tank, but they hinder movement. Small children can be treated in a leg whirl pool and encouraged to do knee extension, hip flexion, and dorsiflexion of the feet.

Moist heat was used for some of the older children, and seemed beneficial. The treatment was of 15 minutes duration, and extreme care was taken not to debilitate the patient.

Some of the patients used night splints, especially for the ankles. Braces were not used for ambulatory patients; they could not tolerate the added weight even though the lightest metals were used. A back brace, besides the prohibitive weight, would also tend to upset their finely adjusted balance. For some nonambulatory children, a single bar brace with T strap was used to help keep the feet in good alinement. No amount of splinting and bracing will completely eliminate contractures, but it will slow the rate of shortening. If, on initial examination, the degree of contracture is great, no splinting is attempted, since it was learned (through trial) that these patients could not tolerate it. For patients whose feet are in extreme plantar flexion a wedged shape piece of wood (doorstop) attached to the footrest of the wheel chair gives adequate support and discourages the tendency to invert. Arm suspension slings are of great help to these children, not only for allowing more movement, but for offering a means of exercise.

Any physical therapist working with muscular dystrophics should remember that much can be learned from these patients—especially by observing the manner in which they handle themselves and the way they compensate for lack of muscle power. Some are more imaginative than others, some more energetic, and some more in-

telligent. The same is true of their parents; thus, much can be garnered from this group to pass on to others who need help. Although it is well to explain technics that have proven helpful to one patient—it does not necessarily follow that they will help another. Each has his own limitations, but a suggestion might lead the patient to an adaptation of a certain technic to suit his own needs. The patient and his parents live with the condition 24 hours a day and are bound to be better able to cope with it than an outsider. Through exercises and repeated muscle examinations these children learn to control their muscles better; even though they do not gain in strength, they make better use of what remains and exercise prevents disuse atrophy. On this basis it can be said that a program of physical therapy is beneficial to muscular dystrophics, and those who participate have the advantage over those who do not. An intelligent and guided use of muscle power will maintain functional activity longer than a haphazard attempt to force weakening muscles to perform. The psychological effect on these patients of "something being done" for them cannot be overlooked either.

Much has been learned from these children, much remains to be learned, but there is a great deal that a truly interested physical therapist can do for them to make their "way of life" a happier and more active one.

Index to Current Literature

ARTHRITIS

Psychological Aspects of Rheumatoid Arthritis. B. M. Cormier, E. D. Wittkower, Yves Marcotte and Francoise Forget, Canad. M. Ass. J., 77:533-541, Sept. 15, 1957

The Biochemical Changes in Rheumatoid Arthritis. J. F. Buchan, Brit. J. Phys. M., 20: 196-199, September 1957

AMPUTEES

Cross Education in the Prosthetic Training of the Below-Elbow Amputee. F. A. Hellebrandt, S. J. Houtz and M. J. Partridge, Am. J. Phys. M., 36: 196-211, August 1957

Function of an Amputee Clinic. Frederic B. House, J. Michigan M. Soc., 59: 1159-1161, September 1957

ASSISTIVE DEVICES

Adaptation of Homemaking Skills for the Hemiplegic Woman. Ruth Emmett, Am. J. Occup. Ther., 11: 283-287, September-October 1957

Electromechanical Arm Slings. E. F. Horner, B. Konugres and D. Smith, J. Am. M. Ass., 165: 150-152, Sept. 14, 1957

CEREBRAL PALSY

Cerebral Palsy. D. Allen, Physiotherapy, Lond., 43: 267-269, September 1957

Definitions of Cerebral Palsy and Their Role in Epidemiologic Research. Leonard T. Kurland, Neurology, 7: 641-654, September 1957

Problems in Diagnosis and Management of the Brain-Injured Child. Edward Schwade and Jean P. Davis, Wisconsin M. J., 56: 375-380, September 1957

CIRCULATION

Measurements of Peripheral Blood Flow Under Conditions of Physiological Stress. C. J. Imig, H. Gaskill, A. Bauer and H. M. Hines, Arch. Phys. M., 38: 571-573, September 1957

EDUCATION AND RESEARCH

Research in Psysiotherapy—The Principles of Clinical Research Work. Bryan Gaudevia, Physiotherapy, Lond., 43: 257-267, September 1957

Trends in Medical Education. Jonathan E. Rhoads, Arch. Phys. M., 38: 587-591, September 1957

GERIATRICS

Boredom—The Psychosocial Disease of Aging. Joseph W. Still, Geriatrics, 12: 557-560, September 1957

Rehabilitation of the Aged in the United States. John H. Aldes, J. Am. Geriat. Soc., 5: 681-688, July 1957

Thoughts on the Geriatric Goal—What Are We Striving For? E. M. Bluestone, Geriatrics, 12: 553-556, September 1957

MUSCLE PHYSIOLOGY

Cholinesterase in Normal and Abnormal Human Skeletal Muscle. Evelyn B. Beckett and G. H. Bourne, J. Neur. Lond., 20: 191-197, August 1957

Flexibility Characteristics of Three Specialized Skill Groups of Champion Athletes. Jack R. Leighton, Arch. Phys. M., 38: 580-583, September 1957

Muscular Strength-Endurance Relationships. H. Harrison Clarke, Arch. Phys. M., 38: 584-586, September 1957

NEUROANATOMY

Functional Organization of Descending Vestibular Influences. B. E. Gernandt, Y. Katsuki and R. B. Livingston, J. Neurophysiol., 20: 453-469, September 1957

The Innervation of Tendons and Aponeuroses. Donald L. Stilwell, Am. J. Anat., 100: 289-311, May 1957

NEUROLOGY

Chronic Multiple Peripheral Neuropathy in Childhood. R. K. Byers and L. T. Taft, Pediatrics, 20: 517-537, September 1957

Motor Complications of Herpes Zoster. David Kendall, Brit. M. J., 5045: 616-618, Sept. 14, 1957

Incomplete Spinal Cord Injuries. R. G. Taylor and J. R W. Gleave, J. Bone Surg. Brit. Vol., 39-B: 438-450, August 1957

(continued on page 78)

State Registration of Physical Therapists

Listed below are the requirements for legal licensing or registration of physical therapists as provided by various state laws.

Following legal registration each law has a provision for periodic renewal of registration which must be complied with.

It is anticipated that several additional states will enact similar legislation within the coming year and members are urged to keep informed about new laws by watching for announcements in the *Physical Therapy Review*.

All laws provide that registered or licensed physical therapists may practice only on prescription and direction of licensed physicians.

Alaska

To represent yourself as a physical therapist in Alaska you must:

1. Apply to the Territorial Medical Board
2. Pay application fee of $25.00 or $5.00 if by reciprocity
3. Have been graduated from a school of physical therapy approved by the Board or by the Council on Medical Education and Hospitals of the American Medical Association
4. Prove to the satisfaction of the Board your fitness for registration under the terms of the Physical Therapists Practice Act
5. Pass an examination given by the Board or be registered in a state or territory where requirements are substantially equal and a similar privilege is accorded.

Apply to: Territorial Board of Medical Examiners
188 South Franklin
Juneau, Alaska

Arizona

To engage in the practice of physical therapy in Arizona you must

1. Apply to the Board of Physical Therapy Examiners
2. Pay application and examination fee of $5
3. Have satisfactorily completed a course in physical therapy approved by the American Medical Association
4. Pass an examination conducted by the Board which includes practical, written, and oral tests or be registered in a state having equal standards and according a similar privilege or be registered in a registry approved by the American Medical Association

Apply to: June D. Walker, Secretary
1838 N. 37th Road
Phoenix, Arizona

Arkansas

To represent yourself as a registered physical therapist and/or physical therapist or physiotherapist in Arkansas you must

1. Apply to the Board of Registered Physical Therapists
2. Pay a registration and investigation fee of $30
3. Have been graduated by a school of physical therapy approved by the appropriate subcommittee of the American Medical Association
4. Prove to the satisfaction of the Board your fitness for registration under the terms of the Physical Therapists Practice Act.

Apply to: Dr. Joe Verser, Secretary
Board of Physical Therapy Examiners
Harrisburg, Arkansas

California

To practice physical therapy in California for compensation received or expected you must be registered if you are not licensed. To be registered you must

1. Apply to the Board of Medical Examiners of the State of California. Request application for registration. (Not licensure)
2. Pay a filing fee of $25
3. Have been graduated from a school or course of physical therapy approved by the Board
4. Pass an examination conducted by the Board which includes practical demonstrations, and written and oral tests.

Apply to: Board of Medical Examiners of the
State of California
1020 "N" Street
Sacramento, California

CONNECTICUT

To represent yourself as being registered in Connecticut or to use in connection with your name the letters "R.P.T." or the words "Registered Physical Therapist" or any other letters, words or insignia indicating or implying that you are a registered physical therapist in this state you must

1. Apply to the Connecticut State Board of Examiners for Physical Therapists
2. Pay a fee of $20 or $10 if by reciprocity
3. Be a graduate of a school of physical therapy approved by the State Board of Examiners for Physical Therapists
4. Pass an examination given by the Board or be registered in a state or Province of Canada or any other country where requirements are substantially equal and it accords a similar privilege.

Apply to: Ruby Oscarson, R.P.T., Secretary
Connecticut State Board of Examiners
for Physical Therapists
26 Palmer Hill Road
Stamford, Connecticut

DELAWARE

To represent yourself in Delaware as being registered with the Examining Board as a Physical Therapist or to use in connection with your name the words or letters "RPT," Registered Physical Therapist, Physical Therapist or Physiotherapist or any other letters, words or insignia implying that you are a registered physical therapist you must

1. Apply to the State Examining Board of Physical Therapists
2. Pay a fee of $15
3. Have been graduated from a school of physical therapy approved at the time of your graduation by the appropriate subcommittee of the American Medical Association or if prior to 1936 by the American Physical Therapy Association
4. Pass an examination conducted by the Board; or be licensed or certified in another state, territory or foreign country with standards determined by the Board to be as high as those of Delaware and according a similar privilege; or if practicing physical therapy apply before July 1, 1957 and meet the qualifications as set forth by the American Physical Therapy Association and for a senior member of the American Registry of Physical Therapists.

Apply to: State Examining Board of Physical Therapists
Dover, Delaware

FLORIDA

Chapter 486, Florida Statutes, 1951, has been replaced with the passage of a new physical therapy practice act. To imploy in any way that you are a physical therapist you must:

1. Apply to the State Board of Medical Examiners
2. Pay a fee of $25.00
3. Be a citizen of the United States
4. Have been graduated from a school giving a course in physical therapy which has been approved by the appropriate subbody of the American Medical Association at the time of your graduation; or if graduated prior to 1936, by the American Physical Therapy Association
5. Pass an examination; or have passed an examination before a similar lawfully authorized examining board in another state, District of Columbia, territory or foreign country having standards equal to Florida requirements or have passed the examination of the American Registry of Physical Therapists.

Apply to: Mrs. John W. Hedrick, R.P.T.
Secretary, Physical Therapy Board of Medical Examiners
Chief of Physical Therapy Department, V. A. Hospital
Coral Gables, Florida

GEORGIA

In Georgia to use in connection with your name the words or letters "Registered Physical Therapist" or "R.P.T.," or any other letters, words or insignia indicating or implying that you are a registered physical therapist you must

1. Apply to the State Board of Medical Examiners
2. Pay a filing fee of $25 or $5 application fee if by reciprocity
3. Have been graduated from a school or course of physical therapy approved by the Board
4. Pass an examination or be registered in another state where the requirements at the date of registration were substantially equal and accorded a similar privilege;

or be registered by the American Registry of Physical Therapists.

Apply to: C. L. Clifton, Joint Secretary
State Examining Boards
State Capitol
Atlanta, Georgia

TERRITORY OF HAWAII

In Hawaii to hold yourself out or designate yourself as a physical therapist or physical therapy technician you must

1. Apply to the Board of Health of the Territory of Hawaii
2. File with the Board a written testimonial signed within 30 days previously by two persons licensed as physical therapist or physician in the Territory of Hawaii, a photograph and a report of a physical examination as prescribed
3. Be a graduate from a school or course of physical therapy approved by the Council on Medical Education and Hospitals of the American Medical Association or be a member in good standing of the American Physical Therapy Association, the American Registry of Physical Therapists or the Chartered Society of Physiotherapy.

Apply to: Department of Health
Territory of Hawaii
Honolulu, T. H.

ILLINOIS

To use any words, abbreviations, figures or letters with the intention of indicating practice as a registered physical therapist in Illinois you must

1. Apply to the Department of Registration and Education in writing on forms prepared and furnished by the Department
2. Pay a fee of $10
3. Be a citizen of the United States or have filed a petition for naturalization within thirty days after becoming eligible to do so
4. Have completed to the satisfaction of the Department a course in physical therapy given in a school of physical therapy approved by the Department
5. Pass an examination conducted by the Department or be registered by another state or territory or province of Canada if the requirements at the date of your registration were substantially equal.

Apply to: Department of Registration and Education
Division of Physical Therapy
Springfield, Illinois

INDIANA

To practice physical therapy or profess to be a physical therapist, physiotherapist, physical therapy technician, or to use the initials "P.T.", "P.T.T.", or "R.P.T.", or any other letters, words, abbreviations, or insignia indicating that you are a physical therapist, or to practice or to assume the duties incident to physical therapy in Indiana you must:

1. Apply to the Indiana State Board of Medical Registration and Examination
2. Pay a fee of $25.00 or $15.00 if by reciprocity
3. Be a graduate of a school or program of physical therapy which meets the standards of the Council on Medical Education and Hospitals of the American Medical Association, as approved by the Board
4. Pass an examination conducted by the Board or be duly licensed to practice physical therapy in another state, or a foreign country, provided that such an applicant is otherwise qualified.

Apply to: Ruth V. Kirk, Executive Secretary
Indiana State Board of Medical Registration and Examination
538 K. of P. Building
Indianapolis 4, Indiana

MAINE

To practice or hold yourself out as authorized to practice physical therapy in Maine you must

1. Apply to the Board of Examiners in Physical Therapy
2. Pay a fee of $15
3. Be graduated from a school of physical therapy approved by the appropriate subcommittee of the American Medical Association or if graduated prior to 1936 by the American Physical Therapy Association. After January 1, 1956 pass an examination conducted by the Board or be licensed to practice physical therapy in a state maintaining a standard equal to that maintained in this state.

Apply to: Steen L. Meryweather
71 Leighton Street
Bangor, Maine

MARYLAND

To practice as a physical therapist in Maryland you must

1. Apply for license to the Maryland State Board of Physical Therapy Examiners

2. Pay a fee of $10
3. Be graduated from an accredited course in physical therapy or a four-year college course with a major in physical therapy
4. Pass an examination given by the Board or be licensed or registered by a legally constituted board with standards approved by the State Board of Physical Therapy Examiners of Maryland and whose qualifications are equal to those of Maryland.

Apply to: Maryland State Board of Physical Therapy Examiners
2411 No. Charles Street
Baltimore 18, Maryland

MASSACHUSETTS

In Massachusetts to use in connection with your name the words or letters "Registered Physical Therapist," "R.P.T.," or any other letters, words or insignia indicating or implying that you are a registered physical therapist you must

1. Apply to the Board in writing on an application form prescribed and furnished by the Board
2. Pay a fee of $25
3. Have been graduated from a school of physical therapy approved at the time of your graduation by the appropriate subbody of the American Medical Association or if prior to 1936 by the American Physical Therapy Association
4. Pass an examination conducted by the Board or be registered as a physical therapist under the laws of another state if the requirements at the date of your registration were substantially equal and the other state accords a similar privilege.

Apply to: Board of Registration in Medicine
State House
Boston 33, Massachusetts

MINNESOTA

To represent yourself as a physical therapist in Minnesota or use in connection with your name the words or letters "Physical Therapist," "Physiotherapist," "Physical Therapy Technician," "Registered Physical Therapist," "P.T.," "R.P.T." or "P.T.T.," or any other letters, words, abbreviations or insignia indicating or implying that you are a physical therapist you must

1. Apply to the State Board of Medical Examiners for registration
2. Pay a fee of $15
3. Have been graduated from a school of physical therapy approved by the Board
4. Pass an examination conducted by the Board or present satisfactory evidence of having passed the examination of the American Registry of Physical Therapists.

Apply to: Minnesota State Board of Medical Examiners
230 Lowry Medical Arts Building
St. Paul 2, Minnesota

NEBRASKA

To practice physical therapy in Nebraska you must:

1. Apply to Board of Examiners in Physical Therapy
2. Pay a fee of $25.00 or $50.00 if by reciprocity
3. Be a graduate of a school of physical therapy approved by the Department of Health upon recommendation of the Board of Examiners
4. Pass an examination or be licensed by written examination in another state or territory maintaining a standard equal to that maintained in this state and according a similar privilege.

Apply to: Husted K. Watson
Director, Bureau of Examining Boards
Room 1009 State Capitol Building
Lincoln, Nebraska

NEVADA

To be registered in Nevada and be legally entitled to call yourself a Registered Physical Therapist or R.P.T., you must

1. Apply to the State Board of Physical Therapy Examiners and
2. Pay application fee of $30 and
3. Be graduated from a school of physical therapy approved by the Board and
4. Pass an examination conducted by the Board or be registered in another state or territory where requirements at the date of registration were substantially equal to Nevada requirements.

Physical Therapists who are assigned to the state on a temporary basis to assist in a medical emergency and physical therapists who meet Nevada qualifications may obtain permits without examination to practice for a period not to exceed six months. Temporary registration fee—$10.

Apply to: Marion Barfknecht
232 West 1st St., Room 11
Reno, Nevada

NEW HAMPSHIRE

In New Hampshire to use in connection with your name the words or letters "Registered Physical Therapist," or "R.P.T.," or any other letters, words or insignia indicating or implying that you are a registered physical therapist you must

1. Apply to the Board of Registration in Medicine
2. Pay a fee of $5
3. Have completed an approved course in physical therapy in a school maintaining at that time a standard satisfactory to the Board
4. Pass an examination conducted by the Board or be registered by the American Registry of Physical Therapists or under the laws of another state or territory whose requirements the Board deems equal to those in this state.

Apply to: John S. Wheeler, M.D., Secretary
New Hampshire State Board of Registration in Medicine
Room 107, State House
Concord, N. H.

NEW MEXICO

To practice physical therapy in New Mexico you must

1. Make written application on forms obtained from the registrar of the Physical Therapists' Licensing Board in Santa Fe
2. Pay a fee of $25
3. Be a citizen of the United States or be able to present satisfactory evidence of having applied for citizenship in the United States
4. Be a graduate of a school of physical therapy in good standing (defined as having standards at least as high as those required for approval by the Council on Medical Education and Hospitals of the American Medical Association)

Apply to: Ruth Bauer, Registrar
Board Address: Box 2206
Santa Fe, New Mexico

NEW YORK

To practice physiotherapy in New York you must

1. Apply to the State Education Department
2. Pay a fee of $40
3. Be a citizen of the United States or have declared your intention of becoming such citizen
4. Have completed a post-secondary school training program of not less than four academic years in a college or university maintaining a curriculum for the training of physiotherapists registered and approved by the state education department or satisfy the regents that you had satisfactory equivalent training, and
5. Pass an examination given by the Board of medical examiners of the state of New York

Graduates of Registered Curriculum apply to:
John W. Paige, Chief
Bureau of Professional Examinations and Registrations
23 South Pearl Street
Albany 7, N. Y.

Graduates of Nonregistered Curriculum apply to:
Robert C. Killough, Jr.
Assistant Commissioner for Professional Education
23 South Pearl Street
Albany 7, N. Y.
(Apply, including the statement: "This is a petition to the Board of Regents under section 211 of the Education Law.")

NORTH CAROLINA

In North Carolina to represent yourself as registered and to use in connection with your name the words or letters "Registered Physical Therapist," "RPT," "Physical Therapist," or "Physiotherapist" or any other letters, words, or insignia indicating or implying that you are a registered physical therapist, you must

1. Apply to the State Examining Committee of Physical Therapists
2. Pay a fee of $25
3. Have been graduated by a school of physical therapy approved for training physical therapists by the appropriate sub-body of the American Medical Association or if graduated prior to 1936 by the American Physical Therapy Association at the time of your graduation, and
4. Pass an examination or be registered under the laws of another state or territory where requirements for registration were at the date of your registration substantially equal and a similar privilege is accorded.

Apply to: Margaret L. Moore, Secretary
Department of Physical Therapy
N. C. Memorial Hospital
Chapel Hill, N. C.

OKLAHOMA

In Oklahoma to use the title Registered Physical Therapist, or the letters "R.P.T.," or in any other way orally or in writing, in print, or by sign, directly or by implication represent yourself as a Registered Physical Therapist, you must

1. Apply to the State Board of Medical Examiners in writing on a blank forwarded by the Board
2. Pay a fee of $25; $5 if by reciprocity
3. Be a citizen of the United States or have filed an intention
4. Have been graduated by an approved school of physical therapy or possess equal qualifications,* and
5. Pass an examination conducted by the Board or be registered under the laws of another state or territory if the requirements are substantially equal and the state accords a similar privilege.

Apply to: Mrs. Lucy Haidek, Secretary
Board of Medical Examiners
813 Braniff Building
Oklahoma City, Oklahoma

PENNSYLVANIA

To be admitted to the practice of physical therapy in the State of Pennsylvania, you must

1. Apply to the State Board of Medical Education and Licensure
2. Pay a fee of $25
3. Be a graduate from a physical therapy school approved by the Board of Medical Education and Licensure of the Commonwealth of Pennsylvania. (At the present time the Board approves all physical therapy schools approved by the Council on Medical Education and Hospitals of the American Medical Association)
4. Pass a licensing examination.

Apply to: Department of Public Instruction
Bureau of Professional Licensing
State Board of Medical Education and Licensure
Box #911
Harrisburg, Pennsylvania

SOUTH CAROLINA

In South Carolina to use in connection with your name the words or letters "Registered Physical Therapist," "RPT," "Physical Therapist," or "Physiotherapist" or any other letters, words or insignia, indicating or implying that you are a registered physical therapist, you must

1. Apply to the State Board of Examination and Registration of Physical Therapists
2. Pay a fee of $10
3. Be a graduate of a school of physical therapy approved by the appropriate subbody of the American Medical Association or if graduated prior to 1936 by the American Physical Therapy Association at the time of your graduation, and
4. Pass an examination or be registered under the laws of another state or territory where the requirements were at the date of your registration substantially equal to those in force in this state and the other state or territory accords a similar privilege.

Apply to: Ruth Snelling Linley, Secretary
State Board of Physical Therapy Examiners
319 Walker Street
Columbia, S. C.

SOUTH DAKOTA

To be licensed in South Dakota and be legally entitled to call yourself Registered Physical Therapist, "R.P.T.," Physical Therapist, or Physiotherapist, you must—

1. Apply to the State Board of Medical and Osteopathic Examiners and
2. Pay application fee of $15 and
3. Be graduated from a school of physical therapy approved by the Board and
4. Pass an examination conducted by the Board or be licensed by another state or territory if the requirements at the date of licensing were substantially equal to requirements in South Dakota or be registered by the American Registry of Physical Therapists.

Apply to: John C. Foster, Executive Secretary
State Board of Medical and Osteopathic Examiners
300 First National Bank Building
Sioux Falls, S. D.

TENNESSEE

To practice physical therapy and be certified by the Board in Tennessee you must

1. Apply to the State Board of Medical Examiners and

* Board Rules and Regulations define:
"an approved school" as one approved by the Council on Medical Education and Hospitals of the American Medical Association and
"Equal qualifications" as member of APTA or ARPT.

2. Pay fees totalling $40 ($10 application fee, $15 examination fee, $10 application fee to licensing Board after satisfactory completion of examination, $5 annual licensing fee)
3. Be graduated from school of physical therapy approved by the board and
4. Be a citizen of the United States and
5. Pass an examination conducted by the Board which includes practical demonstrations and written and oral tests or be licensed by another state or Territory if the requirements at the date of licensing were equal to requirements in Tennessee and the other state accords a similar privilege to holders of Tennessee licenses.

Apply to: Dr. H. W. Qualls, Secretary
State Board of Medical Examiners
1635 Exchange Building
Memphis, Tennessee

VERMONT

To practice as a physical therapist or to hold yourself out as authorized to practice physical therapy in Vermont you must:

1. Apply to the Board of Physical Therapy Registration
2. Pay a fee of $25.00 or $10.00 if by reciprocity
3. Be a graduate of a school of physical therapy approved by the Board
4. Pass an examination conducted by the Board or be registered under the laws of another state or territory having equal standards, or if trained in a foreign country, must meet eligibility standards as judged by the Board.

Apply to: Sophie Myers, Secretary
De Goesbriand Memorial Hospital
Burlington, Vermont

WASHINGTON

In Washington to represent yourself as being registered and to use in connection with your name the words or letters "Registered Physical Therapist," "R.P.T.," or any other letters, words, or insignia indicating or implying that you are a registered physical therapist, you must

1. Apply to the director of licenses on a form furnished
2. Pay a fee of $25
3. Have been graduated by a school of physical therapy approved for training physical therapists by the appropriate sub-body of the American Medical Association at the time of graduation or if graduated prior to 1936 by the American Physical Therapy Association
4. Pass an examination conducted by the state examining committee of physical therapists, or on recommendation of the Examining Committee be registered under the laws of another state or territory where requirements at the date of registration were substantially equal and that state accords a similar privilege.

Apply to: Thomas A. Carter, Administrator
Professional Division
Department of Licenses
Olympia, Washington

WISCONSIN

To practice or hold yourself out as authorized to practice physical therapy in Wisconsin, you must

1. File written application on forms provided by the board of medical examiners
2. Pay a fee of $25
3. Have been graduated from a school of physical therapy with standards of education and training substantially equal to that of the University of Wisconsin
4. Pass an examination conducted by the state examining committee for physical therapy or be licensed or certified in another state or foreign country with standards determined by the board to be as high as those of this state.

Apply to: Emma Zitzer, Secretary
Physical Therapy Examining Committee
207 N. Brooks Street
Madison 5, Wisconsin

Physical Therapy Practice Acts
Provisions for Reciprocity or Endorsement

The following summary has been prepared with the assistance of those serving on state Physical Therapy Examining Boards or Committees, chairmen of Public Laws Committees, and, in some instances, by chapter presidents. It is hoped that members will find the material sufficiently accurate and clear so as to be helpful to them. The summary is only a guide and further information should be solicited from the proper authorities as designated for each state in the briefs of the various state laws immediately preceding this summary.

Key to Information

Registration or licensure without examination is granted to a physical therapist registered in another state, if:

I. The state granting original registration or license has substantially equal requirements
II. A similar privilege is accorded physical therapists from this state
III. The applicant achieved registration or licensure in the original state by written examination
IV. The applicant was registered under the "grandfather clause" of the original state
V. The examination in the original state is equal to the examination in this state and the applicant meets other requirements of this state
VI. The applicant is a registrant of the American Registry of Physical Therapists
VII. The applicant is a member of the American Physical Therapy Association
VIII. The above privileges are granted to those registered or licensed in
  A. Another state
  B. Territory of the United States
  C. Canada
  D. Another foreign country

NOTE: As of Nov. 25, 1957, 11 states have used the licensure examination for physical therapists developed by the Professional Examination Service of the American Public Health Association, 1790 Broadway, New York 19, New York. These states are California, Florida, Massachusetts, Nevada, New Hampshire, North Carolina, South Carolina, South Dakota, Tennessee, Washington and the Territory of Hawaii. Oklahoma has used but is not currently using the P.E.S. examination. Pennsylvania will use the P.E.S. examination after Jan. 13, 1958.

Connecticut

1. Reciprocity has been established with Maryland, North Carolina, South Carolina. 2. Registration by endorsement of credentials.

Florida

1. Citizenship is required. 2. Endorsement of credentials permitted to graduates of schools of physical therapy approved by the Council on Medical Education and Hospitals of the American Medical Association.

Georgia

1. and if the state or territory whence the applicant comes, accords a similar privilege of registration without examination to holders of certificates as registered physical therapists under this act.

Illinois

1. and provided the individual was registered or licensed by examination after Jan. 1, 1952. 2. Applicants are required to pass practical and oral examinations.

Indiana

1. Law requires that applicant must have been duly licensed in another state, territory, or foreign country.

Maryland

1. Written examination is not specified. 2. There is a further requirement that the candidate must have been graduated from a school approved by the Maryland Board.

Nebraska

1. Applicant must provide affidavit of two practitioners testifying as to moral character and standing in the profession, and must have practiced in the state in which he was licensed by examination for at least one year.

Nevada

1. Each applicant's fitness will be reviewed on individual basis.

New Mexico

1. or if the applicant is eligible for registration with the American Registry of Physical

State or Territory	I	II	III	IV	V	VI	VII	VIII A	VIII B	VIII C	VIII D	Fee
Alaska	I_a and I and I							I	I			$ 5.00
Arizona	I and I or.....					I or I		I	I			5.00
Arkansas	I_a and I							I	I			30.00
California	No reciprocity or endorsement											
Connecticut	I_a and I_1 or.....					I_2 or I_2		I	I	I	I	10.00
Delaware	I and I							I	I	I	I	15.00
Florida	$I_{1,2}$ and I and I		or.....			I		I	I	I	I	25.00
Georgia	I_a and I					I_1		I	I			25.00
Hawaii						I or I		I	I	I	I	10.00
Illinois	$I_{a,1}$ and.....		I_2					I	I	I		10.00
Indiana			I		I_1			I	I	I	I	15.00
Maine	I and.....		I	or.....		I or I		I				15.00
Maryland			$I_{1,2}$					I	I	I	I	10.00
Massachusetts	I and.....		I					I				10.00
Minnesota						I						15.00
Nebraska	I_1 and I and I		and.....		I			I	I			50.00
Nevada	I_1							I	I	I	I	30.00
New Hampshire	I and I or.....					I		I	I			5.00
New Mexico						I_1 or I_1		I	I			25.00
New York	I_1											25.00
North Carolina	I_1 and I		I_2	I_3				I		I_4	I_4	25.00
Oklahoma	I and I and I		or I					I	I			5.00
Pennsylvania	No reciprocity or endorsement											
South Carolina	I_a and I							I	I			10.00
South Dakota	I or.....					I		I	I			25.00
Tennessee	I_a and I			I_1				I	I			10.00
Vermont	I_1							I	I	I	I	10.00
Washington	$I_{a,1}$ and I							I	I			25.00
Wisconsin	I and.....		I_1	and.....		I		I	I	I	I	25.00

Note: Subscript *a* indicates that substantially equal requirements must have been in effect where the applicant was registered and at the time of his registration.

Subscript numerals 1, 2, 3, 4 refer to additional information listed by states.

Therapists, or is eligible to membership in the American Physical Therapy Association and is a citizen of the United States.

New York

1. Licenses from other states may be considered for endorsement if the conditions relating to admission to the examination in the other state are similar to that in New York, and if the school from which the person graduated is registered in the State of New York, and if the examination given by another state is equivalent to that given in the State of New York.

North Carolina

1. Refers to applicants registered in Arkansas, Delaware, Georgia, New Hampshire, New Mexico (pending), South Dakota, Tennessee, (other agreements may be arranged.) 2. Refers to applicants registered in Maryland, Wisconsin, Illinois. 3. Where reciprocity is established, those registered under "grandfather clauses" are acceptable. 4. Special ruling of Examining Committee applies.

Tennessee

1. Those registered under "grandfather clause" in a state having substantially equal requirements are acceptable.

Vermont

1. The Board at its discretion will evaluate a license from another state.

Washington

1. Upon recommendations of the examining committee.

Wisconsin

1. The examination of the American Registry of Physical Therapists is not acceptable.

Case Report

Physical Therapy Management of Arthrotomies of the Knee

Marcel Binning, Major, AMSC

INTRODUCTION

The experience of the author as a physical therapist has shown that there are almost as many treatment regimes employed in the postoperative management of arthrotomies of the knee as there are orthopedic surgeons.

The following case report is presented, not as a program that is new or dramatic, but rather as evidence of a method that is used in our hospital and has proved to be efficacious.

HISTORY

A 22 year old male patient was admitted to the hospital Dec. 3, 1956, with a diagnosis of a "bucket-handle" tear of the medial meniscus; the knee was "locked." Following admission to the hospital, physical therapy, consisting of quadriceps setting, straight leg raising, and active range of motion to the right knee, was initiated. An arthrotomy was performed Dec. 12, 1956. The preoperative diagnosis was confirmed and the meniscus was excised. The leg was immobilized in anterior and posterior long leg plaster splints, maintaining the knee in extension and the foot in the neutral position.

Quadriceps setting and straight leg raising exercises in the splints were resumed on the first postoperative day under the supervision of the physical therapist. The patient then was instructed to repeat the exercises each hour throughout the day.

The splints were removed on the seventh postoperative day. In addition to quadriceps setting and straight leg raising, active exercise to the knee was started; however, maintenance of terminal extension, rather than gaining flexion, was emphasized. The patient was taught a crutch pattern for ambulation that was nonweight-bearing on the right.

Progressive resistance to straight leg raising and knee flexion was started on the ninth postoperative day. This was continued daily until the patient was lifting 20 pounds. At this time, a modification of conventional progressive resistive exercises to the quadriceps was added and hamstring resistance was discontinued. Straight leg resistance was discontinued when he was able to lift 20 pounds with the quadriceps in the modified program of progressive resistive exercises. The patient was graduated from crutch-walking to full weight-bearing when he could walk without a limp and without an increase in effusion.

Chief, Physical Therapy Section, 130th Station Hospital, APO 403, New York, New York.

Upon discharge from the hospital on Jan. 18, 1957, the patient was able to lift 35 pounds of weight (10-RM) with the quadriceps through the range from 45° to 0°. Range of motion was equal to the other knee (135° to 0°). All joint motion measurements are based on the system where 0° indicates full extension and flexion is toward 180°. There was no effusion or pain. The patient was able to walk without a limp, run, climb stairs, and do deep-knee bends without discomfort.

DISCUSSION

The progression of the treatment activities is based on the irritating effect of the activity on the synovial lining of the knee. Because surgery aggravates an already irritated synovial lining, it is not performed when effusion is present, unless the knee is "locked" and cannot be "unlocked." This was the condition in the case history presented.

Since the classification of physical activities is based on the irritating effect, the routine is prescribed in the following sequence beginning with that which is least irritating; (1) quadriceps setting and straight leg raising, (2) active range of motion, (3) resistance to straight leg raising, (4) resistance to extension of the knee from 45° to 0°, (5) weight-bearing.

The crutch pattern that is used is a three-point crutch gait. The affected leg and the crutches are carried forward simultaneously with the knee extended as the foot contacts the floor, and with the weight being taken on the hands. This maintains a walking pattern without weight-bearing, thereby shortening the convalescence since there is no improper gait pattern to correct when the patient does become weight-bearing.

In the case history presented, the patient was required to lift 20 pounds in straight leg raising before advancing to the modification of the conventional progressive resistive exercises to the quadriceps. The weight requirement for subsequent patients has been decreased to 10 pounds. This is continued only until the patient can do progressive resistive exercises against the same amount of weight through a range from 45° to 0° without an increase in effusion. The progression of the program is based entirely upon the patient's clinical condition. Should effusion develop or increase, the activity is too strenuous for the patient.

The technic of conventional progressive resistive exercises to the quadriceps is modified by extending the knee against resistance from 45° to 0° rather than from 90° to 0°. Extending the knee from 90° to 0° against resistance is comparable to pulling a weight around a right-angled corner. When done in this manner, the resistance forces the patella against the femoral condyles harder than extension against the same resistance from 45° to 0°.

The maximal amount of weight that the patient is able to lift in straight leg raising and in the modified technic of progressive resistive exercise to the quadriceps is determined by trial and error. The resistance is increased in subsequent exercise periods as rapidly as the quadriceps' strength is increased. Three sets of 10 repetitions each are performed during the exercise period. Beginning with 50 per cent of the maximal load, the resistance is increased by 25 per cent in each succeeding set. Each lift against resistance is held in complete extension momentarily.

Weight-bearing is unnecessary as a treatment modality in that it contributes nothing to improvement; furthermore, it irritates an already irritated synovial lining. Nothing is lost by deferring weight-bearing until the joint can withstand this most irritating activity.

The treatment program during the convalescence of a military patient can be more ideal than that of the average civilian patient. The military patient can be hospitalized and treated daily. In civilian life this is usually impossible because the patient must return to work quickly due to economic pressures. Furthermore, the use of crutches is not practical in many occupations; consequently, the weight-bearing must be started before the quadriceps muscle is strong enough to prevent further irritation of the synovial lining.

The author is grateful for the aid and cooperation given by Colonel Edwin W. Hakala, MC, Chief of the Orthopedic Service, U.S. Army Hospital, Fort Benning, Georgia, in the preparation of this paper.

Members are invited to submit case reports. This type of contribution can be of assistance to students and to recent graduates. Suggestions for the preparation can be found on the following page.

Physical Therapy Review Case Reports

Suggestions for Their Preparation

Format

The case report should be clear, concise, to the point, and written in a narrative style. The report should not be taken verbatim from the hospital records and should not consist merely of fragmented incidents or items whose relationship to each other is not clear.

Such reports should be brief . . . usually, not more than four pages of manuscript double-spaced.

Photographs or illustrative data may accompany the case report but should be limited to one for each report unless more are necessary for clarity or are of special interest. Releases should be obtained for all photographs.

Title

All titles should be brief within descriptive limits.

The name of the disability treated should be included in the title if it is the relevant factor; if the technic or kind of treatment used is the principal reason for the report, then this should be in the title. Quite often both will appear. Use of subtitles is recommended.

Example: Unusual Gait Pattern in Hemiplegia

Facilitation Technics for Poliomyelitis Patient
Application to Self-Care Activities

Authors

In most cases authorship belongs to the person principally carrying out treatment or to the person responsible for the preparation of the report. If others contributed to the care of the patient, credit may be given in the narrative thus:

> "Mary Hanson administered the progressive resistive exercise program and reported that. . . ."

Outline of body of paper

Personal data (age, sex, race, marital status, and occupation if relevant)
Chief complaint
Family history (if relevant)
Past personal history (only relevant points)
History of present complaint (including symptoms)
Results of physical examination (Example: "Physical findings relevant to the physical therapy program were. . . .")
Results of laboratory examination (if relevant)
Diagnosis
Treatment
Results
Necropsy findings if end was death

Unnecessary material

Hospital number
Patient's initials
Negative findings on physical examination
Comments or digressions about the case within the body of the report (if desired, the actual report may be followed by a paragraph of comments.)
Negative data or results . . . if such information has teaching value, include it, otherwise, it is better left out.

Tense

Everything that happened after the author saw the patient is expressed in the simple past tense. "The boy was admitted. . . ." "He recovered function."

Everything noted prior to the time the author saw the patient is in the pluperfect or past perfect tense. "The third week, paralysis had progressed. . . ." or "The patient had had symptoms of. . . ."

Times and dates

Do not confuse sequence of times. The important thing is to be sure that the reader can orient himself to the proper order of events. If using specific dates, spell out the name of the month and avoid using only numerical values such as 6-8-56.

Accurate descriptions

The author may know of what he speaks but caution must be exerted to use exact anatomical terms and descriptions. For example, "upper abdomen" implies more than one; "upper left

quadrant of abdomen" is more accurate. Or, "body of the first cervical vertebrae" is incorrect, as the first cervical has no body proper.

Verbal-arithmetical faults

Inaccurate: "In 39 cases of poliomyelitis, gross weakness of the abdominal muscles was found. In 20 cases the neck flexors were weak." A reader would question here if the number of cases being described were 39 or 59: were the 20 cases part of or in addition to the 39?

Accurate: "A total of 39 poliomyelitis patients was examined. Abdominal weakness was found in all patients in the series. Twenty of the 39 patients also had neck flexor weakness."

Headings and subheadings

Unnecessary unless the report is of unusual length.

Summary and conclusion

A summary is not usually necessary in reports of a single case. Conclusions are not usually justified.

Articles based on a series of cases

There are several methods of reporting on a series of cases.

1. The author may report in full on one case which illustrates the largest number of features of the group. He may follow the single report with comments on the ways in which the group digressed from the example and number of cases in which such and such a feature was or was not found.
2. The author may prefer to abandon the case report and from his extensive observation of cases write a report which gives the characteristics of a disease or the general results of a particular treatment.
3. The author may present a series of extremely brief case reports and summarize the results at the end of the paper.

General hints for good writing

1. *Paragraphs:* A paragraph is a connected series of sentences contributing to the development of a single topic. It is a little essay in itself.
2. *Topic Sentences:* The first sentence in a paragraph tells what the paragraph is about. Succeeding sentences should relate to it. The final sentence in a paragraph should let the reader know that that particular topic is finished.
3. Sentences should be arranged for sequential reading.
4. Avoid redundancies. Do not repeat under comments what has appeared in the body of the report.

A more complete discussion regarding case reports may be obtained from the following references:

The Physician-Writer's Book, Richard M. Hewitt, Philadelphia, W. B. Saunders Co., 1957

Medical Writing, M. Fishbein, New York, Blakiston Co., 1950

Suggestions from the Field

Colored Light and Shadow Player

Elaine Travis Gordon, M.A.

Purpose

The Colored Light and Shadow Player was constructed to provide exercise that can be graded and repeated accurately. With minimum adjustments and attachments this one unit can be arranged for a specific resistive or assistive upper extremity, lower extremity, cervical or trunk motion. The Light and Shadow Player also can be set up to provide practice in grasp and release.

Motivation

The exercise machine is operated to produce on a screen a colorful play of lights and shadows, rewarding the patient for each motion performed. Motion causes the colored light to change and results in the shadowing of the forms which are hung behind the screen.

Operating Parts—(See fig. 1—schematic representation of parts and fig. 2—diagram of electrical circuit)

The exercise is accomplished by pulley mechanisms (A, A2, or A3) between weights (B) and

Occupational Therapist, Department of Occupational Therapy, Hospital for Joint Diseases, New York, N. Y.

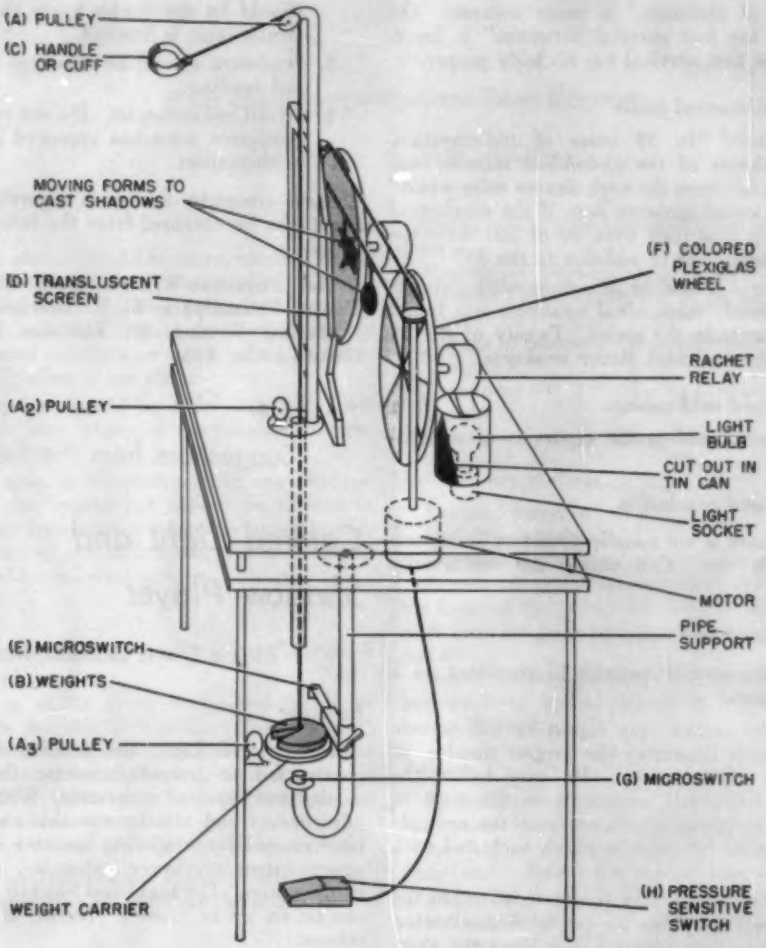


Figure 1. The floor pulley is braced to a diagonal bar from the front to the back leg.

One rope is attached to the weight carrier. The rope can be inserted through any of the three pulleys. When the floor pulley (A3) is used, the rope goes around the table pulley (A2) and down through a hole in the table.

The handle is attached to the rope with a 2-inch hose clamp. The clamp secures the rope so that a loop of rope is formed. A notebook ring joins the loop of rope to the handle.

The transluscent screen (D) goes completely across. The parts behind the screen are covered on all sides by the hood.

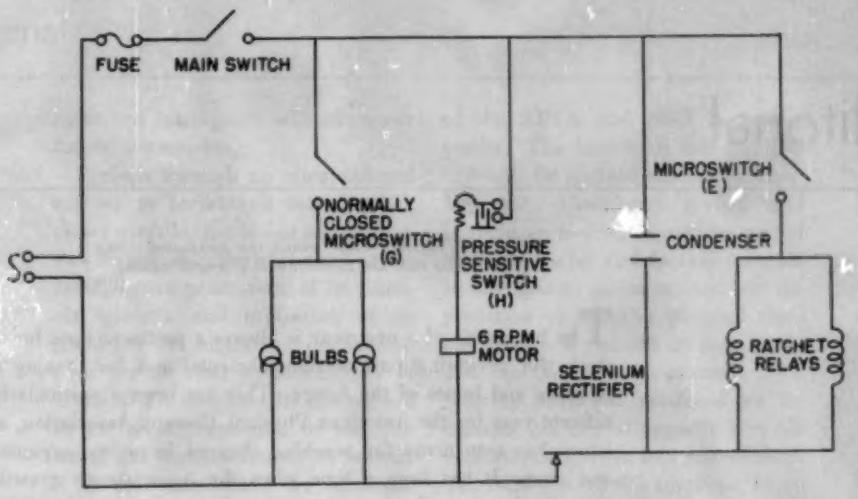


Figure 2.

handles or cuffs (C). When the patient accomplishes a motion satisfactorily, colored lights and shadows are projected upon a transluscent screen (D).

The degree of range of motion and resistance is preset by the therapist according to the needs of the patient. The patient pulls on the cuff utilizing the motion directed by the therapist, and thereby lifts the appropriate weight. When the weight touches the microswitch (E) located at the end of the preset range of motion, the weight activates the colored wheel (F) that revolves to the next color. When the patient releases the weight to resting position, the weight hits a second microswitch (G) which turns the light off.

The pressure-sensitive pedal switch (H) controls the rotation of forms hung from a pulley cord supported by two shafts immediately behind the screen. This switch can be used to detect compensatory motion by placing the part likely to compensate on the switch pedal. The switch, when belted with the pedal against the abdomen, can be used to record abdominal breathing visually by the movement of the shadows. With children, when the nondominant hand is affected, the switch employs the uninvolved hand and prevents interference with the exercise of the other hand.

Figure 3. Patient performs wrist exercises.

Editorial

"This day Time winds the exhausted chain
To run the twelvemonth's length again."
BURNS

The beginning of a new year is always a pertinent time for taking stock, for reviewing past accomplishments, and for looking ahead to plans and hopes of the future. This has been a particularly significant year for the American Physical Therapy Association, a year which has seen many far reaching changes in policy, organization, and aims. It has been a time when the Association's growth and maturity has brought it to the point of some critical decisions and the need for discriminating judgments throughout the whole organizational structure.

As we look into the coming year one fact is apparent—realization of the goals which we have set will require an increasing sense of responsibility and expenditure of effort by every member. As we grow in both size and prestige it becomes more and more important that each person recognize his importance to the total success and accept his responsibilities at whatever level he may function.

One of the more specific changes which the coming year will bring will be the change in the structure of your Board of Directors. The increased size and revision of responsibilities represent the first major change in many years and reflects directly the development of the entire profession. Certainly the benefits which will be derived in terms of increased representation, a wider variety of opinions, and the greater potential of skills will have an immediate and significant effect on our Association. We must recognize, however, the direct and expanded obligations which these changes will bring to each of us. Now as never before we are faced with the duty to become a part of the process of elections. Chapter officers must provide vigorous leadership, and every member must give serious consideration to the process of selection. It is earnestly hoped that during your year's activities sufficient time and thought will be given to insure selection of the best candidates to bring us the optimum leadership.

One of last year's most important events was the establishment of the Physical Therapy Fund, Inc. Marking as it did a consequential step toward greater stature and prestige as a profession, it also adds significantly to our realization of many long term aims and goals. The coming year will bring many challenges and problems related to this activity, and our ability to meet these challenges with fore-

Editorial

sight and intelligence will affect our future attainments.

Perhaps through no other channel can we as individuals make such a direct contribution to our own future. Familiarity with the objectives of the Fund, active promotion of its financial growth, and utilization of its resources for increasing our knowledge are all vital responsibilities of every APTA member. Its success will be in direct proportion to your interest and participation in its growth.

In the year ahead we also can project a variety of activities which will have a profound effect on our specific and general growth. The coming months will see the completion of a new, much needed film telling the story of physical therapy to the public. This project, made possible by a grant from the Office of Vocational Rehabilitation, will fill a long felt need and be used, we are sure, by a wide circle of practicing physical therapists.

The new manual, "Physical Therapy, Essentials of a Hospital Department," produced through the intensive efforts of the Joint Committee of the APTA and AHA is now a reality. The impact of this publication will be realized during the coming year. Completely revised and brought up to date it provides one of the most useful and factual manuals in our field to guide or establish the provision of effective physical therapy service to patients in accordance with the best hospital practice.

Every year has produced an increasing number of opportunities for professional growth and refreshment, and 1958 will see this continue. More and more chapters are planning educational programs. The Conference in Seattle will provide an outstanding program; continuation of the AHA and OVR Institutes will bring fresh ideas to many; and your *Review* will provide its usual high level of interesting and provocative papers.

It is our sincere wish that each of you may share fully in these benefits and that your year ahead may be stimulating and productive.

Happy New Year.

E. JANE CARLIN
President

APTA-OVR Institute Committee Meets

Miss Isadore Brown, Acting Director, School of Physical Therapy, Charity Hospital of Louisiana, New Orleans; Miss Irene Waters, Clinical Supervisor at New York University—Bellevue Institute of Physical Medicine and Rehabilitation; and Mr. Alfred Szumski, Assistant Professor, School of Physical Therapy, Medical College of Virginia, met on November 22 and 23 to begin the initial planning for the 1958 APTA-OVR Institute. The topic is "Responsibilities in the Education of the Physical Therapy Student—Pre-Clinical Preparation and Clinical Practice".

Members' Publications

Sara J. Houtz and Miriam Partridge are co-authors with F. A. Hellebrandt, M. D., of "Cross Education in the Prosthetic Training of the Below-Elbow Amputee" published in the August 1957 issue of the *American Journal of Physical Medicine.*

The September 1957 issue of the *American Journal of Nursing* in its section, Trading Post, carries an original idea, "A Bed Chair for Disabled Patients," described by Association members, Anne Prohaska and Margaret C. Winters of the Vanderbilt University School of Nursing.

Association News

Jeanne Lindquist of Long Beach, California, passed away on Nov. 14, 1957. Miss Lindquist, a graduate of the Meyer Memorial Hospital School of Nursing in Buffalo, New York, received the certificate in physical therapy from Stanford University in 1950. Miss Lindquist's physical therapy experience included positions in New York, Pennsylvania, and Wisconsin. She was most recently a supervising physical therapist at Rancho Los Amigos, Hondo, California. Miss Lindquist was a member of the Southern California Chapter.

Original Papers for Conference

Time devoted to the reading of original papers at Conference has acquired more attention from the membership each year. Members who have been working on the evaluation of treatment procedures, new methods of treatment, new applications of technics, or special projects will want to consider presenting and sharing the knowledge they have gained.

The Editorial Board of the *Review* will assume the responsibility for selection of papers to be read. Members who are interested in reading an original paper in Seattle should write to Sara Jane Houtz, Editor-in-chief, *Physical Therapy Review*, 1790 Broadway, New York 19, New York, by March first.

Chapter News

Northern California

The Ways and Means Committee recently met with a Certified Public Accountant for the purpose of reviewing the Chapter's financial program. Budget and reimbursement of travel expenses were among the items discussed.

The Chapter is cooperating with the Western Hospital Association in establishing a Physical Therapy Section of the W.H.A. which would meet concurrently. APTA chapters in the seven western states, Alaska, and Hawaii will be eligible to membership in the Physical Therapy Section.

Illinois

Dr. Charles U. Letourneau, Director, Program in Hospital Administration, Northwestern University, and a member of the Advisory Council of the APTA presented the medicolegal aspects of physical therapy at the December meeting. The February meeting will be the annual Member Participation meeting where members read original papers on technics or describe devices and gadgets they have found helpful in the treatment of their patients.

New York

The Annual Meeting for 1958 was announced in the November newsletter as follows:

On May 24, 1958
We hope to see all from over the state
At our annual meeting in Binghamton—
Too late for snow, but we hope for sun.
We'll let you know about the time;
To miss this meeting would be a crime.
Come hear what the treasurer has to say
A new fiscal year begins in May.
Don't you care how your money is spent?
Or who's to be your next president?
A corresponding secretary we'll need too
One of these officers may be you.
Your Public Laws Chairman will also be there
To have a good showing would be fair
To show her how much we appreciate
All the free hours she's used for the State.
We can't repay her for candles she's burned
At both ends while doing work we spurned.
So won't you be there to add your thanks
'Stead of staying home using verbal spanks?
'Cause that's what it is when you criticize
We all know, 'cause we've got spies.
Less than four hours away for most of us
Just get up early without any fuss.
Have a gay reunion when hundreds throng
Together to sing a joyful song.
As a State Chapter we're mighty strong;
If you're not with us, we won't be long.

Oregon

In the interest of learning what research methods are being used in studying normal persons, the Chapter presented the following half-day program in October at the University of Oregon:

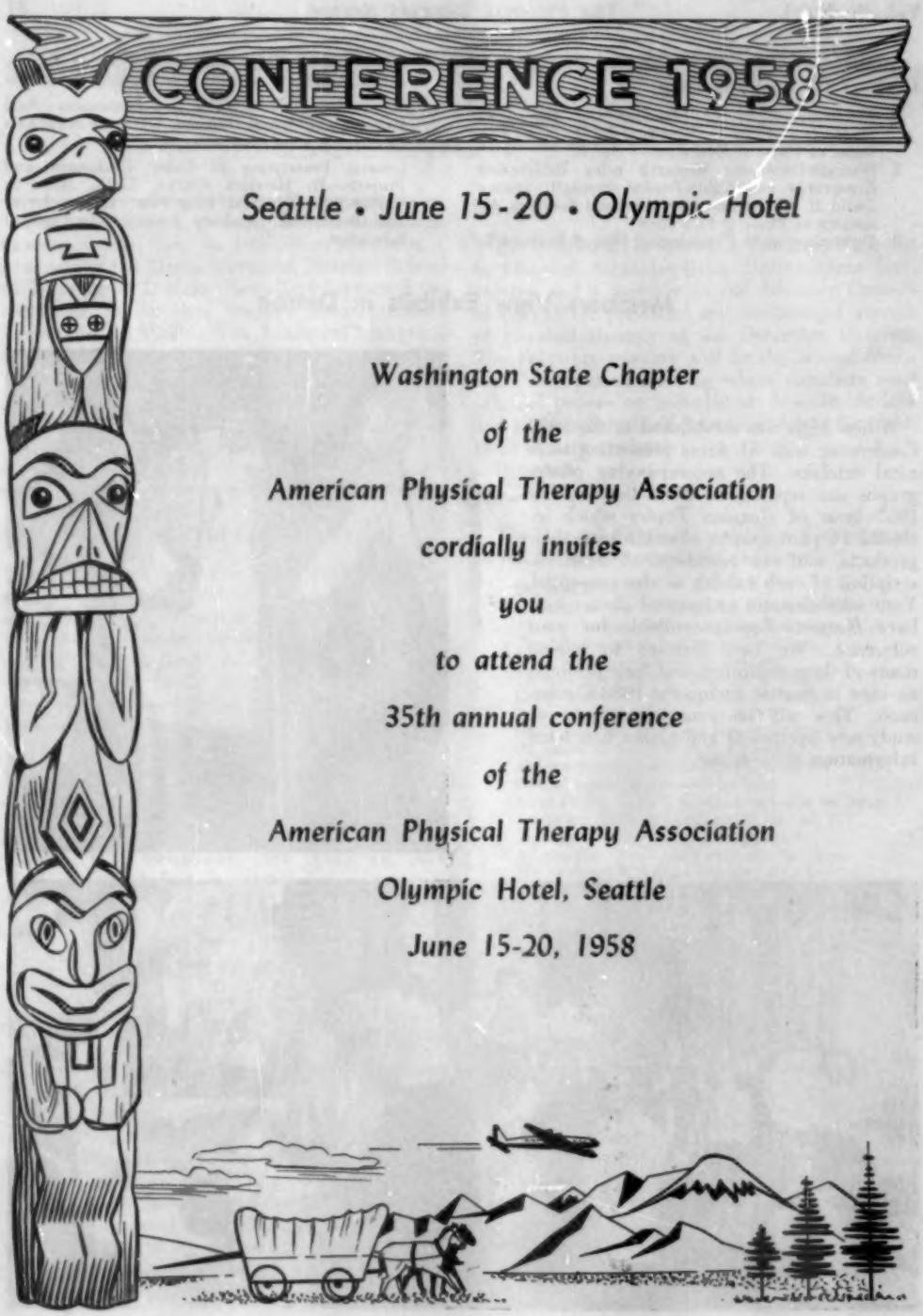
Demonstration and discussion of Research Equipment

Presiding: Margaret S. Poley, Ph.D., Professor of Physical Education

1. Electromyography of Shoulder and Hip Joint Movements—Peter O. Sigerseth, Ed.D., Ph.D, Professor of Physical Education
2. Strength-Decrement Research using Hellebrandt Ergographs and Cable-Tension Strength Tests—David H. Clarke and Day Peterson, Research Assistants in Physical Education
3. Determination of Physiological Cost of Exercise by Gas Analysis—Ralph Hasman and James Crakes, R.P.T., Graduate Assistants in Physical Education
4. Somatotyping: Photography and Assessment—Neel Hayman and James Harrison, Graduate Assistants in Physical Education
5. General Description of Other Equipment and Projects—H. Harrison Clarke, Ed.D., Research Professor in Physical Education; Robert Irving and Don Glines, Graduate Assistants in Physical Education.

Members View Exhibits in Detroit

A new high was established at the 1957 Conference with 51 firms presenting technical exhibits. The accompanying photographs are reproduced from the October 1957 issue of *Hospital Topics* which included 14 photographs of exhibitors, their products, and our members. A brief description of each exhibit is also presented. Your administrator or hospital library may have *Hospital Topics* available for your reference. We look forward to having many of these exhibitors and their products on view in Seattle during the 1958 Conference. This will be your opportunity to study new equipment and gather first hand information as to its use.



Seattle • June 15-20 • Olympic Hotel

Washington State Chapter

of the

American Physical Therapy Association

cordially invites

you

to attend the

35th annual conference

of the

American Physical Therapy Association

Olympic Hotel, Seattle

June 15-20, 1958

Seattle, Gateway to Alaska and the Orient

Let's Explore

At last, 153 years after Lewis and Clark made their first overland trip to the great Pacific Northwest, the Washington Chapter will be host to the 35th Annual Conference. Take your choice of "facilitated covered wagons," your own, or a plane, bus or train, and come to Seattle—the Gateway to Alaska and the Orient.

Whatever your route to the Pacific Northwest, you will view the natural wonders of our country or those of our good neighbor, Canada. You will see the vastness of the plains, the splendors of the Rockies, or the blueness of the Pacific. There is no unexciting way to approach the Evergreen State with its Queen City on Puget Sound. Bring your cameras and binoculars and pack your camping equipment for a pre- or postconference exploration in the fashion that brings you closest to Washington's natural wonders.

As you enter the Evergreen State from the east you may touch Spokane, center of Washington Chapter's Eastern District. Second largest of the state's cities, Spokane was named for an Indian tribe and means "child of the sun." The country of far eastern Washington is a land of golden wheat ranches where record yields of wheat are produced in fields extending as far as the eye can see in every direction, the sunlight and cloud shadows presenting an ever changing pattern.

Grand Coulee dam, the largest masonry structure man has ever built, is 92 miles west of Spokane. The roaring spectacle of water cascading over its spillway is an awesome sight. The Grand Coulee, an immense gorge dug into the valley floor by the prehistoric Columbia River, presents geological wonders where 13 great lava flows once coursed over the area.

From eastern Washington you may pass through or over the headquarters for central Washington's apple industry, the beautiful Yakima and Wenatchee Valleys. The city of Wenatchee ships more apples than any other city in the world.

Your path may vary through other beautiful areas of Washington State but your goal is Seattle

where Chief Seattle was friendly to the pioneers and, in keeping with his spirit, Seattle will be friendly to all pioneers of '58. Let's explore Seattle! Within a short distance from your Conference Headquarters, the Olympic Hotel, you will discover the waterfront with its ferries and ocean-going vessels; curio shops, many of which have an Alaskan flavor; the Pike Place market; the monument of Chief Seattle; Pioneer Square with its Totem pole; the Smith Tower, highest building west of the Mississippi with its famous Chinese Room on the forty-second floor from which a magnificent view will spread before you. You can catch a salmon within shouting distance of Seattle's skyline!

Seattle, "City on the Water," rises out of sheltered Puget Sound, separating its salt waters from a tranquil 24 mile long fresh water playground, Lake Washington. The two are linked by the Government Locks, Ship Canal, and Lake Union nestling close to the downtown business district. To the north, Green Lake is an aquatic playground inside a metropolis! The city is cradled between two mountain ranges—Cascades on the east, and Olympics, superb setting for gorgeous sunsets, on the west. To the south towers perpetually snowclad Mt. Rainier, 14,408 feet above sea level, and to the north looms 10,750 foot Mt. Baker. Seattle's climate is air-conditioned, blending air of mountain, sea and forest, making a suit comfortable all year 'round.

So let your thoughts wheel westward! Come to Seattle and . . .

Let's Explore Facilitation

Have you wanted to know the who, what, why, how, when, and where of technics of facilitation? Have you heard and read but have not seen? Have you seen and heard but not learned why? All of these questions have been considered in the planning of the scientific sessions of the 1958 Conference Program. Three of the newer concepts of prescribed exercise will be presented, demonstrated, and will be analyzed by a neurophysiologist. Many of your questions will be answered, more will occur to you, and an opportunity will be given for you to ask those persons who are best prepared to answer.

The 1958 method of the Conference Program will be an exploration of facilitation based upon wishes of the members as expressed on the conference evaluation forms completed by those who attended the Detroit Conference. Members want to learn more about new methods which may help them to treat their patients more effectively; they believe that demonstrations will increase their understanding; they feel that participation by those attending is important, and that group discussions promote an exchange of ideas.

Six sessions will be devoted to technics of facilitation; at the opening session, a neurophysiologist will present a picture of the reflex responses of the normal subject from infancy to maturity. Physical therapists will be challenged to explore ways in which they can capitalize on these reflex mechanisms in the treatment of patients.

Factors which limit purposeful movement—weakness, spasms, spasticity, incoordination, tremor, adaptive shortening and contracture—will be discussed and the proponents of technics of facilitation will project their ideas, "As We See It."

Other sessions on "How We Do It"; "The Patient: Analysis of Motor Dysfunction, Planning of Activities, Criteria for Progress"; "Testing and Measurements: Purposes and Methods"; "The Physical Therapist's Understanding of the Patient's Emotional Reactions to Disability and Treatment" will lead up to curbstone conferences where about 25 members who have used one of the three methods of facilitation will demonstrate with patients. You will want to observe the technics being used with the types of patients of particular interest to you. Questions and answers summarized by the neurophysiologist will complete the theme.

The final afternoon session will be devoted to the presentation of various timely subjects and original papers read by members. According to the plan, at least 35 members will contribute to the success of this stimulating program. May your stimuli be "summated" to bring you to Seattle!

Marriages

Carole L. Arnot, of Wyomissing, Pa., to Paul P. Howard, New York, N. Y.

Nancy A. Cayard, of Berkeley, Calif., to Pedro Castillo, Berkeley.

Nerlene C. Chandler, Washington, D. C., now Mrs. Nerlene C. Ramsey, Lockport, N. Y.

Anne Cochrane, of Fort Sam Houston, Tex., now Mrs. Anne C. MacLeod, Brighton, Mass.

Celia Cowger, of Omaha, Neb., to Frederick Lamson, Omaha.

Doreen F. Davie, of Seatle, Wash., now Mrs. Doreen D. Snyder, Seattle.

Lillias Donahue, of Spokane, Wash., now Mrs. Lillias D. Falkenreck, Spokane.

Marilyn Francis, of Flat Rock, Mich., now Mrs. Marilyn F. Kreger, Ann Arbor, Mich.

Betty K. Graham, of Dallas, to Alvyn W. White, Jr., Durham, N. C.

Jean S. Igasaki, of Los Angeles, Calif., now Mrs. Jean I. Katano, Los Angeles.
Martha A. Keim, of Cape Girardeau, Mo., now Mrs. Martha K. Smirl, Emporia, Kans.
Judith A. Kramer, of Chicago, Ill., to Ronald Brukoff, Chicago.
Bella J. May, of New York, N. Y., now Mrs. Bella M. Sammut, Miami, Fla.
Helen McCusker, of Palo Alto, Calif., now Mrs. Helen M. Atwill, Stanford, Calif.
Jean McGregor, of Washington, D. C., now Mrs. Jean M. Singleton, Takoma Park, Md.
Jean McKinley, of Vallejo, Calif, to Willis Layton, Berkeley, Calif.
Barbara A. Meyer, of Ann Arbor, Mich., to Charles Backstrom, Washington, D. C.
Irene Novikoff, of San Francisco, Calif., to Stanley H. Levin, Palo Alto, Calif.
Caroline B. Olson, of Monroe, Wis., now Mrs. Caroline O. Bayrhoffer, Madison, Wis.
Carol Richardson, of Menlo Park, Calif., to Wilson Fraker, San Francisco, Calif.
Phyllis T. Sink, of Lawton, Okla., to Harold R. Everett, Ft. Sill, Okla.

Summary of Meeting of House of Delegates

June 25, 26, 28, 1957—Detroit, Michigan

At this meeting 47 chapters were represented by 201 delegates carrying 259 votes. The following chapters were not represented: Alaska, Arizona, San Joaquin Valley, Santa Barbara, Hawaii, Maine, Montana, New Hampshire, Rhode Island, South Carolina, and South Dakota.

The sessions were presided over by the Speaker, Agnes Snyder. In the absence of the Secretary, Louise Bailey, because of illness, Dorothy Graves, Director, was appointed and served as Secretary pro tem.

Prior to roll call the Delegates paid silent tribute to the 14 Association members who had passed away during the past year. Following the roll call the Speaker appointed the following committee to edit the minutes: Dorothy Graves, Southern California; James Dryden, Ohio; and Dorothy Page, New York.

Reports of the following officers and standing committees were read, placed on file [and published in the September issue of the *Physical Therapy Review*]:

Secretary, Treasurer, Finance Committee, Conference Program Committee, Judicial Committee, Nominating Committee, and Editorial Board.

The Executive Director and Staff Consultants of the National Office gave the report of their work as a panel presentation. [The compilation of this report was published in the September issue of the *Physical Therapy Review*.] The President reported on the Physical Therapy Fund, Inc.

In accordance with a recommendation from the Board of Directors the Delegates voted to establish a Public Health Section of the Association. The following bylaws were amended with minor revisions from those proposed amendments published in the March 1957 issue of the *Physical Therapy Review*: III, V, VI, VII, XI.

It was voted that amendments to bylaws V, VI, VII and XI, which concerned a revision of structure for the Board of Directors, not become final until the next election to be held during the 1958 Annual Conference.

The following articles of the Code of Ethics were amended with minor revisions from those proposed amendments published in the April 1957 issue of the *Physical Therapy Review*; Articles II, III, IV. [Copies of the newly amended bylaws and Code of Ethics have been distributed to all chapters and will be mailed to every member with the next membership newsletter.]

The House passed the following motion, endorsed by the Pennsylvania Chapter, that

> "The Board of Directors charge the committee with the responsibility of preparing a section on elections in the Bylaws for consideration at the next meeting of the House of Delegates."

The following resolution as presented by the District of Columbia Chapter was adopted:

> "WHEREAS, The Annual Conference of the American Physical Therapy Association has been held during the latter part of June for the last several years, and
>
> WHEREAS, A number of members have expressed a desire that the Annual Conference of the American Physical Therapy Association be held at a time of year other than June, and
>
> WHEREAS, Both the membership of the American Physical Therapy Association and the number of members attending the Annual Conference have increased substantially in the last several years, and
>
> WHEREAS, The time of the Annual Conference is designated by the Board of Directors of the American Physical Therapy Association, therefore, be it
>
> *Resolved*, That the Board of Directors conduct a

poll of the membership of the American Physical Therapy Association to ascertain the time preferred for the Annual Conference by the largest number of members responding to said poll."

On motion of the Illinois Chapter the appreciation of the Association for hospitality extended the Conference by the Michigan Chapter was expressed.

The meeting was adjourned.

DOROTHY GRAVES
Secretary Pro Tem.

National Activities

The past several months have been active ones in carrying on Association business. Members will be interested in the following outline which reveals the scope of our functions in addition to the regular programs and developmental work carried on in our Chapter and Membership, Professional Education, and Professional Services Departments.

ALLIED MEETINGS

American Hospital Association
APTA exhibited at the annual meeting in Atlantic City. Jane Carlin and Lucy Blair participated in a panel discussion.

American Medical Writers Association
Sara Jane Houtz and Dorothy Voss attended the annual meeting in St. Louis.

National Rehabilitation Association
Dorothy Voss represented APTA at the Annual meeting in Minneapolis.

National Society for Cripped Children and Adults
Mary Haskell attended the annual meeting in Chicago and served as Co-Chairman for the Physical Therapy Section.

American Public Health Association
APTA exhibited at the annual meeting in Cleveland. Lucy Blair and members of the Northeastern District, Ohio Chapter staffed the booth.

The Society of Technical Writers and Editors
Carol Vance attended a three-day meeting in New York.

STANDING COMMITTEES

October

The Advisory Committee to the Department of Professional Education held a four-day meeting In Highland Park, Illinois.

The Conference Program Committee held a three-day meeting in Seattle to plan the 1958 Conference Program.

November

The Nominating Committee held a three-day meeting in the National Office to select the slate for the 1958 elections.

December

The Finance Committee held a one-day meeting in the National Office to consider the budget and recommend revisions.

The Board of Directors met in the National Office for three and a half days for its semi-annual meeting.

Coming Meetings

January

Physical Therapy Review Editorial Board
Advisory Committee on Chapter Activities
Advisory Committee to the Department of Professional Services

February

Judicial Committee

AD HOC COMMITTEES

October

The Film Advisory Committee held a three-day meeting in the National Office to discuss with the producers the new film for which funds have been granted to the APTA by the Office of Vocational Rehabilitation. This Committee met again in December to approve the script.

The Steering Committee of the Board of Directors held a three-day meeting in the National Office to plan the agenda for the semi-annual Board meeting.

November

The APTA-OVR Institute Planning Committee held a two-day meeting in the National Office to plan the 1958 Institute. This Committee will meet again in January.

* * * * *

Physical Therapy Fund, Inc.
The members of the Physical Therapy Fund, Inc. (APTA Board of Directors) held their first annual meeting in the National Office on Wednesday, Dec. 4, 1957.

AHA-APTA Institute
Eighty physical therapists and administrators attended the five-day Institute for Physical

Therapists in Boston jointly sponsored by the American Hospital Association and the APTA with the Massachusetts Chapter serving as host.

American Registry of Physical Therapists
Elizabeth Wood and Mary Lawrence attended a two-day meeting in Rochester, Minnesota.

World Confederation for Physical Therapists
Mildred Elson attended a meeting of the Executive Committee in Cambridge, England, in July.

Council of Physical Therapy Directors
Sarah Rogers and Helen Hickey attended a three-day meeting and Workshop in Bandera, Texas.

Staff Travel

September

Delaware	Lucy Blair and Lillian Chabala
Minnesota	Dorothy Voss
Missouri	Sarah Rogers and Dorothy Voss
New Jersey	Mary Haskell and Lucy Blair
North Carolina	Lucy Blair and Lillian Chabala

October

Connecticut	Sarah Rogers
Illinois	Misses Haskell, Rogers, Hickey and Voss
Massachusetts	Dorothy Voss
Pennsylvania	Lillian Chabala
Texas	Sarah Rogers and Helen Hickey
Washington State	Dorothy Voss and Charlyne Cox

November

Illinois	Mary Haskell
Massachusetts	Misses Blair, Chabala, Goldwater, Haskell, Voss
New Jersey	Mary Haskell and Dorothy Voss
Ohio	Lucy Blair
Pennsylvania	Edna Goldwater

New Student Members

Bouvé-Boston

Jean M. Alsheimer	Carol L. McDaniel
Diane Calderwood	Nancy A. Morrissey
Kathryn Caldwell	Eleanor L. Palmer
Sally Gavel	Gail Pedersen
Rachel Gifford	Nancy Reid
Patricia Gilman	Judith E. Spooner
Margaret E. Hanna	Elizabeth P. Streit
Beverly A. Harwood	Christine Swanson
Beverly L. Hiney	Margaret Tomkins
Margaret C. Hunter	Charlanne Van Wormer
Elaine Kaufman	Judith A. Vineburg
Barbara N. Margossian	Patricia Wagner
Karen McClave	Meredith A. Watt

Charity Hospital

Geraldine E. Beadle	Robert R. Kimball
Herbert N. Daly	John K. Neale
Carol K. Fuller	Inge K. Rosselot
Robert D. Skinner	

College of Medical Evangelists

Ralph E. Alway	Billy H. Harris
Peggy Cramer	Bernard Schatz
James A. Wilhelm	

Columbia University

Joseph F. Foti	Miles Reich
Sarah Gillespie	Marcia Robb
Robert Glicken	Gladys M. Rodgers
Barbara W. Heath	Brenda Simon
Sarah E. Herman	Virginetta D. Smith
Barbara L. Poag	Carolyn Sykes
Ansusan Presby	Patricia A. Watson
Magda Yannoussi	

Grady Vaughn School

Pat Gregory	Charles E. Pratt
Barbara J. Harris	Terry M. Robinson
Cassie J. Lewis	David S. Shelton
John McCarthy	Myron J. Thompson
Gene L. McMichael	Glenn A. Turner
Eunice Moore	James R. Walcher
Janna Murray	Dorn Williams
Phala Womack	

Hermann Hospital

Richard G. Balke	Lauretta J. Hinton
James D. Butler	Neil S. Hoppens
James W. Cone	James D. Mays
James B. Durance	Audrey McDougald
George A. Gage	B. June Palmer
Clay R. Gault	Marlon W. Undhjem
Patrick E. Harbine	Lillian D. Weigly
Guilford G. Wythe, Jr.	

Marquette University

Dorothy M. Kamenshek

Medical College of Virginia

Judith A. Brooking	Mary K. King
Marilyn L. Bureau	Jane C. Leatherman
Inga G. Christensen	Carolyn S. Obenshain
Anna L. Cole	Irma P. O'Heir
Noel Davis	Herbert P. Rager
Joan E. Eldridge	Lea D. Smith
Gail S. Fallon	Juanita L. Straley
Phillip F. Jackson	Earl L. Walker
Pauline R. Whelchel	

New York University

Uriel Adar	Lester Lubin
Marjorie A. Agate	Eva R. Meyer
Frances V. Bock	Abelardo Patino
Harry G. D. Borbe	Mavis V. Rose
Elliott Brown	Arthur J. Rosenthal
Russell J. Davis	Joan A. Rossano
Robert B. Goldenberg	Ruth L. Samsel
Myron W. Goldstein	Martin Weinstein
Emrett W. Groomes	Paul Weiss
Mary J. Grubach	Olga Wesotsky
Katherine A. Laughlin	Marvin K. Zylstra

Northwestern University

Lowden E. Anderson
Dee A. Beebee
Marybeth Boggs
Edith M. Chesmer
Matilde M. Fernandez
Judith J. Groves
Constance A. Hauser
Marsha L. Hearn
Barbara G. Johnson
Mordecai Klibanski
Russell R. Kreider
Leah R. Nanninga
Sandra J. Nielsen
Beverly A. Peters
Laura Petterson
Regina Polka
Joan Rademacher
Betty C. Royer
Carol M. Stoudt
Catherine C. Terhune
Noel G. Thornburg
Jean C. Williams

Ohio State University

Elcena Barnes
Marlene Blaustein
Virginia A. Bradley
Lewis C. Crowl
Lois M. Dahl
Barbara J. Denton
Martha L. Evans
Beverly A. Fyffe
Lynda J. Gallaher
Walter Gilbert
Martha J. Hanes
Elizabeth A. Hill
Richard F. Irvin
Thomas F. Leffler, Jr.
Sheila A. McConnell
Rolene A. Oliver
Nancy J. Patton
Joyce A. Poynter
Constance D. Rosenow
Dorothy S. Roshong
Elaine V. Stanton
Patricia A. Terrey
Patricia Vouis
Howard V. Wagner
Nancy E. Windsor

St. Louis University

Margaret L. Averill
Peggy A. Cinnater
Glenda P. McDowell

Stanford University

M. Lynn Ahrens

U. S. Army Medical Service

Carol J. Adams
Mildred Brown
Molly I. Brown
Marjorie A. Byron
Mary B. Cook
Constance E. Davis
Susan O. Grafe
JoAnne K. Cronley
Mary S. Hall
Donna L. Nelson
Edna E. Newman
Mary S. Ozburn
Edwina F. Pope
Caroline A. Sevier
Darlene D. Thompson

University of California

Ronald L. Andrews
Wilton H. Auzenne
Barbara J. Bay
Marcia A. Brown
Eda M. Coburn
Katherine E. Doyle
James C. Franco
Mary L. Glascock
Robert P. Gwin
Jean A. Holmes
Nancy F. Holtzworth
Judith E. Johnson
Mary E. Link
Louise Lokey
Donald J. Newman
Gail C. Patterson
Alicia A. Peters
Nancy C. Schaefer
Betty L. Spencer
Helen E. Starling
Ruth R. Suyama
Joan S. Thompson
Janet A. Thorne
Sandra J. Watson
Alauhua S. T. West
Mary J. Wohletz
Barbara Wolfe

University of Colorado

Katie L. Cawley
Virginia R. Garman
Norma M. Haskew
LaVonne E. Isaacs
John A. Julian
Iwan Krainyi
Mary A. Lewis
Leo S. Mandle
Barbara Mayfield
Betty J. Peirce
Arlo C. Pretzer
Nancy J. Reinecke
LaRea W. Rose
Richard L. Schmidt
Jerry J. Villano

University of Connecticut

Judith A. Accousti
Linda J. Aldrich
Janet M. Anroman
Barbara A. Appleyard
Alison E. Ballantyne
Elizabeth T. Barry
Helen R. Bond
Sara J. Bragin
Jo Ann Cooper
Joan A. Coscia
Joan E. Crosby
Barbara R. Cumpstone
Deborah I. Dodge
Daryl A. Dusseault
Ruth A. Eggen
Mary E. Gentile
Clare L. Girardini
Dolores L. Guit
Carol Hanscom
Margery M. Heimberger
Lydia J. Hersom
Katherine A. Huot
Priscilla Jackson
Helen S. Johnson
Audrey A. Keating
Donna M. Keefe
Camille F. Kokoszka
Carol L. Laughrey
Jean A. LeClaire
Eunice A. Levy
Barbara L'Heureux
Diana P. Manassero
Barbara C. May
Susan B. McKay
Gloria McKinnon
Judith L. Molloy
Virginia A. Morrow
Edward F. O'Neil
Catherine E. Perry
Janice L. Robinson
Ruth A. Ruley
Joseph Salafia
Dorothy E. Shaddock
Sandra M. Sharpe
Sandra L. Skowen
Phyllis E. Stevens
Ann H. Swinton
Joan S. Ullian
Simone L. Walcott
Nancy R. Waller
Joyce A. Whitney
Harry J. Williams

University of Iowa

Mary J. Armstrong
Barbara E. Babcock
James C. Beardsley
Jesse J. Coulter
James P. Dahm
Robert L. Davison
Richard L. Dontigny
Fred R. DuHart
Eleanor F. Earl
Robert R. Greenwood
Paul F. Kirkegaard
William H. Penn
Nick J. Piper
Brian D. Taugher
Peter A. Towne
Panayota Varouxi
Marilyn A. Weydert

University of Kansas

Thomas J. Allegri
Marilyn R. Baker
Alvin R. Becker
Robert P. Butzberger
Martha J. Collingwood
Jane N. Danielson
Beverly A. Drake
Nancy E. Duane
William L. Dunn
Lois A. Ely
Virginia L. Fitzgibbon
Joan C. Foerster
Martha A. Friedmeyer
Molly S. Godwin
Susan L. House
Frederick B. Jansen
Laura A. Johnson
Sara F. Lawrence
Velda E. Marcum
Glover Martin
Ann H. Meeder
Sue A. Moore
Rudolph C. Morris
Joan D. Porter
Nancy B. Read
Marilyn Reynolds
Darlene L. Scott
Mary K. Shaughnessy
Bettie N. Sinclair
Ruby L. Smith
Allen J. Soukup
Carole J. Stucky
Gladys J. Takatani
Mary J. Weaver
Charlene J. Woodward

University of Minnesota

Marilyn K. Clusiau
James R. Cone
William L. Erickson
Mavis M. Johnson

University of Pennsylvania

Joanne F. Bauman
Jerome Brill
Domenic G. E. Cardelli
Bernadine B. Demkovich
Rigoberto M. Garcia
Toby A. Schneiman

University of Southern California

Dorit A. Beer
Michael Bevilacqua
Jack A. Buttars
LaRita M. Cortsen
Nancy L. Doser
Bryan C. Durham
Alton C. Emerson
Rosalyn J. Finkel
Lynne A. Jones
Ruthanne Marr
Joe McKendrick
Marian J. Miller
Shirley J. Moe
Virginia R. Mordhorst
Irwin S. Paris
Joan E. Peer
Paul Rickenbach
Ann L. Rutter
Carole A. Sussman
Stephen J. White

University of Wisconsin

Nadine D. Atkinson
Muriel P. Beamish
Donald F. Hamilton
Mary J. Hayes
Donna J. Jensen
Barbara A. Jones
Doris A. Nichols
Dorothy E. Pagel
Phila M. Rafoth
Jeanette R. Urben
Barbara M. Vandervort

Washington University

Sue A. Langford
Patricia A. Van-Lanen
Johanna R. Wristers

EDITOR'S NOTE—This letter was written with the recognition that parents' tension and insecurity may hinder the recovery of the crippled child. Physical therapists often share the responsibility for answering parents' questions.

Open Letter to the Parents of Crippled Children

DEAR PARENT:

I know how much you love your child because I have three children of my own. Sometimes I find it difficult to be objective with them, to be realistic about things concerning their happiness. Yet, deep within me I realize that I must be realistic, and this is the reason I am writing to you.

I wish to mention some questions that parents ask me during our daily work. One of these questions is: Will my child grow up to be a happy person? I say yes, your child will be a happy person if we do whatever is necessary to make him happy. I have a rule of thumb for crippled children and the handicapped in general: Forget that they are handicapped. Treat them the same way you would treat any other child or any other adult. How do you treat your other children? Do you give them everything they ask for? Do you consent to their doing everything they want to do? Just forget that they are physically a little different from the other children. Be firm, be loving and caring, be conscious of their needs.

Another question that has been asked is this: How much should I express my love to my child? My answer is simply this: Express your love in every way you can, on every occasion you have. Love is never harmful. Of course we must understand the difference between loving and pampering. The child will grow emotionally if he knows that in spite of his wrongdoing we love him, and that in spite of our love for him we will punish his wrongdoing. Knowing that he will be punished if he does anything wrong helps him to know that he is part of the team we call home.

How much should I allow my child to do by himself? We will help him if we follow this simple rule: Try not to be impatient and do not demand anymore than the child can do. On the other hand do not be so overprotective that he may lose his incentive to do things for himself. If he wants to reach for an object, let him reach for it; if he can reach and won't, don't give it to him.

One more question that I have selected among the many that are in the minds of parents with handicapped children: Should I hope for the best or should I keep the idea that my child will always be crippled? My answer is, hope for the best, keep your faith as high as you can, but keep an open mind and an open heart to whatever life may bring. I would like to express my dissatisfaction with the word "crippled" as it is often used. Many people have the stereotyped idea of a cripple as a person who is dependent on everyone and who is different from everyone. Even though we may not hear this idea expressed, it exists in the minds of many parents. You see, being crippled in the sense of being handicapped is very different from being crippled in the sense of being useless. To me a person can be crippled if he is useless to society or to himself, whether he has physical or intellectual handicaps. On the other hand, a handicapped person may be so useful to himself and to society that he may become a symbol of strength and faith. The fact that all types of handicapped persons are employed in all kinds of jobs is an indication that to be handicapped is not to be crippled in the narrow sense of the word. What I am trying to say is this: what your child or mine does should be weighed with respect to his own abilities rather than those of others. I like to repeat these words to myself: Do not compete against others, compete against yourself; in this way you will be more helpful to others and your happiness will increase in direct proportion.

Sincerely,
MARIO E. RIVERA

Mr. Rivera who is Director of the Easter Seal Center, Tallahassee, Florida, is both a physical therapist and an occupational therapist.

Student Column

Star-Gazing

Physical Therapists Collect More Than Pay-checks!

It would be nice if each of you could be three people—or even four. If so, some day soon the shortage of physical therapists might be solved.

But it is true, unfortunately, that the shortage will continue. And after you have completed your years of training, you will have to face up to being "overworked."

But, oh, the satisfactions that will await those of you who keep the stars in your eyes—instead of becoming discouraged at the prospect of work that is never done, of more people needing helping hands than there are hands to help.

In your own way, every day you will be helping to solve a problem that weighs heavily on the conscience of all who are concerned about being their brothers' keepers.

In this country alone, do you realize what a big job lies ahead? Approximately 2,230,000 Americans—boys, girls, and adults—suffering from crippling conditions can be rehabilitated! And this number will grow ever larger as our population grows. They can't reach that goal unless you prepare yourself to meet the many demands that will be made on your time and skill.

In fact, when you get out into the field, you will be helping many thousands get a second chance to live again. It's worth being "overworked" and, yes, even—dedicated.

It isn't too fashionable to talk of dedication—in this day of the trend toward the shorter workweek, bigger fringe benefits, fatter pay checks.

But certainly I can talk with you about dedication. You aren't interested in remunerative rewards alone—or you wouldn't be studying physical therapy. You are willing to take a part of your pay-check in satisfaction.

The satisfaction part of your physical therapy pay-check may not make your bank account grow, but it will make another part of you grow—that part of you that sees satisfaction in work dedicated to humanitarian goals.

Helping those suffering from chronic diseases or other impairments will keep you going when you get sick over being required to do the work of two or three! When you get physically tired, there will always be the little things to keep you going! The smile in the eyes of the patient making a little progress will tell you that he or she is renewing the important inner strengths that are necessary to make life—despite a disability—worth living.

Now I don't like to think that this point of view strikes you as silly or emotional. I do know that thoughts such as these keep us old hands in the profession working, and working hard, during these conditions of shortage.

If we weren't dedicated, we certainly would have a hard time staying in position as a spoke in that wonderful wheel of rehabilitation, of which the patient is the hub.

I think you should turn these thoughts over in your mind from time to time . . . and nurture the dedication of lending a helping hand that first led you into this profession.

Lose your dedication and you will sell yourself—and your patients—short.

Dollars and Sense About Rehabilitation

Disability is a costly business—in dollars and human dignity.

Rehabilitation is costly too—but much less so. It's good business to rehabilitate the several million Americans physically impaired by disease and accidents.

The public costs of disability—costs paid by tax funds—add up to a staggering $537,000,000 annually. That's just to provide maintenance and medical care for disabled people through public assistance programs.

Aid to the blind, alone, comes to $73,000,000 each year. To the permanently and totally disabled, aid means doling out $165,000,000 in tax dollars. And when parents are disabled, it means more funds must be directed into channels for aid to dependent children. The bill for this comes to $128,000,000 once a year.

But that's not all to the dollar side of disability. Add, please, about $171,000,000 to cover payments to disabled persons, payments which are disbursed through General Assistance programs.

Purely from a monetary point of view, rehabil-

itation is good business. First of all, it pays by reducing the cost of public assistance. It has been demonstrated that many disabled persons aided by public assistance programs *can* be rehabilitated.

Through the State-Federal Vocational Rehabilitation program, in a recent year some 57,981 persons were rehabilitated. Nearly 12,000 in the group had been costing the taxpayers an estimated $9,600,000 a year in public assistance alone.

With their rehabilitation completed, they are now productive members of their communities, earning more than $21,000,000 a year. They are paying taxes instead of draining tax funds!

The estimated $7,700,000 spent to rehabilitate these people is only about 80 per cent of what it would cost to maintain them at public expense for one year. Rehabilitation has changed the picture completely. Rehabilitation has put them in a position where they will be able to continue their earnings for many years.

There is, in rehabilitation, a manpower gain to the nation, too. This one year's effort in rehabilitation has contributed about 11,000,000 man days annually to the nation's productivity.

The first year earning of this group of 57,981 persons add up to $105,000,000—adding to the economic wealth of the nation. In one year, these same people pay better than $8,000,000 to the Federal government in income taxes, plus an undetermined amount of state and local taxes.

The group of 57,981 was rehabilitated in 1955. In the year 1956, a record number of 66,273 were rehabilitated. And when the figures are ready for the 1957 tally, it looks as though another record is about to be broken.

Of course, rehabilitation is a group effort rather than a program of a single discipline—requiring trained personnel in medicine, physical therapy, speech and hearing, psychology, counseling, occupational therapy, social work, and on up and down the line.

The good news about rehabilitation carries a challenge for physical therapists—the challenge to work hard, the challenge to recruit so that the needed trained hands can be on the scene when needed.

There is an estimated supply of 7,800 physical therapists across the nation, but—hospitals alone need over 3,500. Considering all demands, the immediate need for physical therapists adds up to more than 5,800.

It is not news that these personnel shortages—in physical therapy and other fields—present a serious obstacle to development of rehabilitation services.

The professions holding key positions on the rehabilitation team know well that the shortages must be solved in record time, before even better reports on accomplishments in rehabilitation can be made.

What will you do to help?

News from the Schools

Connecticut

A Freshman reception was held in November by the student branch of the Connecticut Chapter of the APTA to welcome all new students at the University of Connecticut School of Physical Therapy. The guests viewed a movie entitled "Wheels of Hope" which vividly portrays the work of a mobile therapy unit connected with the Arthritis Unit of the Hartford Hospital.

Audrey McMullen, president of the Student Branch, related her experiences at the 34th Annual APTA Conference held in Detroit in June. Miss McMullen was the only student representative at the conference. It was explained that the Connecticut Chapter puts aside all money received from student memberships, and these funds may be withdrawn by the students upon request It was this unique action on the part of the Chapter, combined with other fund-raising activities of the Student Branch, that enabled Miss McMullen to be sent to the national meeting.

The first fund-raising activity for this year was the sale of Christmas wrapping paper. Profit from this sale was to be included in a contribution to the Physical Therapy Fund, Inc.

—SANDRA SHARPE

Grady-Vaughn

Students at Grady-Vaughn displayed their versatility early this year when they participated in a Variety Show sponsored by the Baylor Hospital student nurses. The gymnasium in the Physical Therapy Department was converted for an evening into a theater where the P.T. students performed tumbling acts for the benefit show.

Guest speakers heard at fall meetings included Dr. Frank Krusen of the Mayo Clinic. Dr. Krusen spoke on "Physical Therapy in Office Practice" and pointed out the value of physical therapy in many of the conditions and illnesses that the general practitioner faces.

—DORN L. WILLIAMS

North Carolina

Welcome to this newly opened School of Physical Therapy at the University of North Carolina in Chapel Hill. The student body consists of only one full time student for this year, but the enrollment is expected to soar as more students declare physical therapy as their major study next year and in the years to come. Meanwhile, the one student must surely be receiving a lot of attention from the three instructors in the department!

University of Southern California

The Trojan spirit has invaded many physical therapy clinics in the Los Angeles area. Members of the Physical Therapy Club at U.S.C. have designed shoulder patches to be worn on their uniforms which indicate that they are P.T. students; and the Trojan, symbol and mascot of the University, holds a place of honor in the center of the design. These patches make the students readily identifiable when working on clinical affiliations. Stickers of the same design are also available for car windows.

Thought for the Month

"Educators quite properly are concerned with preserving academic freedom, and deplore the fact that laymen are too often indifferent or misinformed on the subject. Businessmen quite as properly are concerned with preserving freedom of enterprise, and certainly deplore the ignorance and apathy on this subject in other circles. Are the two areas so different? I do not think so. Both are certainly based on the same premise. Through free competition in business we achieve material progress. Through the free competition of ideas we arrive at truth."

—ROBERT E. WILSON
Chairman of the Board,
Standard Oil Co. (Indiana)

The National Foundation for Infantile Paralysis Turns Dimes to Disciplines

For 20 years, the March of Dimes has asked the American people for help and for 20 years, the dimes have been marching back to American communities through progress in research, aid to professional education, and service to patients.

In launching the 1958 March of Dimes, the National Foundation for Infantile Paralysis, for the first time, draws specific attention to the near $29,000,000 that has been authorized for aid to professional education since 1938. This is in addition to its research and patient care programs.

Every profession recognizes that the greatest single bottleneck in providing service to patients —as well as extending research—is the lack of professional personnel to guide and direct the necessary activities. The National Foundation found early that *any* fight to control *any* disease would require a simultaneous program to add greater numbers of the types of fighters required to handle the disease involved. In the case of poliomyelitis, the kinds of professional personnel required were in constant demand by many kinds of patients: orthopedic, neurological, pediatric or other.

Because benefits to poliomyelitis research may be derived from unanticipated sources, and because poliomyelitis patients requiring rehabilitation may be found in any community, no recipient of a fellowship or scholarship has ever been required to *limit* his program or his subsequent employment to the problems of poliomyelitis alone. His very presence in the community is an asset and a safeguard.

Since 1940, the National Foundation, in addition to supporting research, has provided grants to universities to assist the expansion of teaching programs, and to agencies and associations to encourage improvement of educational standards and expansion of services. Concurrently, funds have been appropriated for fellowships and scholarships designed to add to the nation's total pool of professionally qualified personnel.

As of Sept. 30, 1957 nearly 7,000 such awards had been made. A partial list includes:

- 341 fellows qualified for research, 104 of whom are microbiologists. (There were few in the nation in 1938)
- 272 physicians had received clinical fellowships, among which are:
- 111 specialized in public health and preventive medicine
- 63 orthopedists
- 77 physiatrists
- 21 physicians (pediatricians, neurologists, orthopedists and psychiatrists) studied the concepts and technics of rehabilitation as applied to their own specialties
- 61 physical therapists qualified for teaching in approved physical therapy schools
- 13 occupational therapists qualified for teach-

ing in approved occupational therapy schools

779 students of social work qualified as medical social workers. (There are still only about 3,300 such qualified workers in the nation with an immediate need for 3,500 additional.)

2,674 physical therapists added to the total pool available to the nation. (There are approximately 7,800 practicing physical therapists with an immediate need for 13,500 additional.)

127 professional nurses received scholarships to study orthopedic concepts of nursing

11 professional nurses received fellowships to prepare for supervision and administration in nursing

1,534 medical students given short term fellowships which permit intensive exploration of careers in research, preventive medicine, and rehabilitation.

With the decline in paralytic polio through widespread use of the vaccine, the National Foundation anticipates the opportunity to support the rehabilitation of many polio patients who, because of the lack of knowledge of polio

treatment at the time of their illnesses or because of the pressure of epidemics, were discharged to family care at the earliest possible date in order to direct financial aid and services to new, more needful patients.

January is March of Dimes month and much remains to be done. Your willingness to contribute will aid in further progress in research, aid to professional education, and service to patients.

Information for Contributors

The Physical Therapy Review welcomes original articles of interest to physical therapists throughout the world. Prompt reviewing and processing of papers will be assured if attention is given to the following suggestions.

Manuscripts are accepted with the understanding that they have not been published elsewhere. Contributions may be classified as "Feature Articles," "Suggestions from the Field," or "Case Reports." Feature articles are longer and deal rather extensively with the subject presented; suggestions from the field are brief and describe the instrument or device presented; case reports are short and concerned with discussion of a treatment for a specific type of disease or disability. All material should be presented in a clear, logical, and impersonal discourse.

Submit the original *manuscript* and one carbon copy (keep one carbon copy for your files). All written material should be typed, double-spaced with minimum margins of 1 inch on 8½ x 11 inch opaque white paper. Legends for illustrations, tables, references, and acknowledgments should be placed each on a separate sheet. When citing another author's work, a superscript numeral must appear in the body of the manuscript. The *references* must be accurate and numbered in the order in which they appear in the text. Include the name of each author, title of the article, name of periodical, volume number, inclusive pages, and date.

Illustrations should be protected by cardboard and the name of author and figure number written with soft pencil on the back. If *photographs* are used, sharp black and white prints on glossy paper are required, avoid distracting backgrounds. Graphs, charts, and line figures drawn with india ink on heavy white paper are necessary for good reproductions. Letters and figures should be large enough so that they will be readable when reduced for publication. Tables are reproduced more legibly when the carbon is reversed and typing occurs on both sides of the paper.

Address manuscripts to:

PHYSICAL THERAPY REVIEW
1790 Broadway—Room 310
New York 19, New York

Physical Therapy Programs

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Schools offering the four year program leading to a baccalaureate degree accept high school graduates and transfer students. Schools offering the 12 to 16 months' program leading to a certificate accept students who have completed all or most of their undergraduate work providing they meet certain course requirements. Recipients of a degree and/or certificate have equal professional status. For specific information regarding each school's entrance requirements, tuition, and other fees, write to the physical therapy director indicated below. All students should investigate course requirements *early*.

	Degree	*Certificate*
CALIFORNIA		
Mary J. Dodge School of Physical Therapy Childrens Hospital Society 4614 Sunset Boulevard Los Angeles 27	‡	†
Ronald A. Hershey School of Physical Therapy College of Medical Evangelists Loma Linda	†	†
Lucille Daniels Division of Physical Therapy Stanford University Stanford (Palo Alto)	†	†
Margery L. Wagner Curriculum in Physical Therapy University of California The Medical Center San Francisco 22	†	†
Charlotte W. Anderson Department of Physical Therapy University of Southern California University Park Los Angeles 7	†	†
COLORADO		
Dorothy Hoag Curriculum in Physical Therapy University of Colorado Medical School Denver 20	†	†
CONNECTICUT		
Frances Tappan School of Physical Therapy U 101 University of Connecticut Storrs	†	
ILLINOIS		
Elizabeth C. Wood Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
IOWA		
Olive C. Farr Physical Therapy State University of Iowa Hospitals Iowa City		†
KANSAS		
Ruth G. Monteith Section of Physical Therapy University of Kansas Medical Center Kansas City 12	†	†
LOUISIANA		
Isadore Brown, Acting School of Physical Therapy Charity Hospital of Louisiana New Orleans 12		†
MASSACHUSETTS		
Adelaide L. McGarrett Physical Therapy Department Boston University Sargent College 6 Everett Street Cambridge 38	†	†
Constance K. Greene Department of Physical Therapy *Bouve-Boston School, Tufts University Medford 55	†	
Shirley M. Cogland *Program in Physical Therapy Simmons College-Children's Hospital 300 Longwood Avenue Boston 15	†	†
MICHIGAN		
Virginia Wilson Curriculum in Physical Therapy University of Michigan University Hospital Ann Arbor	†	†
MINNESOTA		
Darrell D. Hunt School of Physical Therapy Mayo Clinic Rochester		†
Wilbur L. Moen Course in Physical Therapy University of Minnesota 860 Mayo Memorial Hospital Minneapolis 14	†	

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

	Degree	Certificate
MISSOURI		
Sr. M. Imelda, S.S.M. Department of Physical Therapy St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Beatrice F. Schulz Department of Physical Therapy Washington University School of Medicine 660 So. Kingshighway St. Louis 10	†	
NEW YORK		
Dorothy L. McLaughlin *Division of Physical Therapy The Albany Medical College Albany 8	‡	†
Mary E. Callahan Courses for Physical Therapists Columbia University College of Physicians & Surgeons 630 West 168th Street New York 32	†	†
Elizabeth C. Addoms Physical Therapy Curriculum School of Education, New York University Washington Square East New York 3	†	†
Mildred F. Heap Program in Physical Therapy University of Buffalo 2183 Main Street Buffalo 14	†	†
NORTH CAROLINA		
Helen Kaiser Division of Physical Therapy Box 3403, Duke Hospital Durham		†
OHIO		
Robert D. Kruse Course in Physical Therapy Frank E. Bunts Educational Institute 2020 East 93rd Street Cleveland 6		†
Gladys G. Woods School of Physical Therapy Ohio State University University Hospital Columbus	†	†
OKLAHOMA		
Thelma Pedersen School of Physical Therapy University of Oklahoma, Medical Center Oklahoma City 4	†	†
PENNSYLVANIA		
Dorothy E. Baethke Division of Physical Therapy University of Pennsylvania 205 S. 34th Street Philadelphia 4	†	†
Kathryn Kelley Curriculum in Physical Therapy D. T. Watson School of Physiatrics Leetsdale	‡	†
PUERTO RICO		
(All classes given in Spanish) Lutgarda V. Piñeiro School of Physical & Occupational Therapy Professional Bldg., 8th Floor Stop 22, Santurce	†	†
TEXAS		
Doris E. Porter Grady Vaughn School of Physical Therapy Baylor University Hospital Dallas 1	†	†
Cecelia J. Lee School of Physical Therapy Hermann Hospital Houston 25	‡	†
Ruby Decker School of Physical Therapy The University of Texas Medical Branch Galveston	†	†
VIRGINIA		
Susanne Hirt School of Physical Therapy Medical College of Virginia Richmond 19	†	
WISCONSIN		
Beth J. Phillips Curriculum in Physical Therapy Marquette University School of Medicine 561 North 15th Street Milwaukee 3	†	
Margaret Kohli Course in Physical Therapy University of Wisconsin Madison 6	†	†
U. S. ARMY MEDICAL SERVICE		
*Physical Therapy Course Army Medical Service School Brooke Army Medical Center Fort Sam Houston, Texas Write to: The Surgeon General Department of the Army Washington 25, D. C. Att.: Personnel Division		†

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

Intermittent Positive Pressure Breathing: A Clinical Evaluation of Its Use in Certain Respiratory Diseases

R. H. L. Wilson, S. M. Farber, and J. E. Collins (Department of Medicine, University of California School of Medicine, San Francisco), CALIFORNIA ., 87: 161-165, September 1957

Intermittent positive pressure breathing (IPPB) enhances treatment of certain respiratory diseases. Many hospitals, physicians' offices, and patients' homes are equipped to administer it. Valve simplification makes for easy maintenance and use of equipment.

Ninety-five patients received IPPB alone or combined with bronchodilator drugs. Spirographs were made before and after treatments. Respiratory disorders included chronic bronchitis and emphysema, various fibroses, senile emphysema, bronchogenic carcinoma, cysts, pulmonary tuberculosis, etc. The majority of patients showed objective improvement, about one-third showed no change, and about 20 per cent worsened. Those with no improvement reported feeling better nonetheless. Some showed improvement when restudied later. IPPB benefits reduced duration of hospitalization through treatment at home, clinic, or doctor's office. IPPB alone or administered simultaneously with drug therapy afforded more relief than a bronchodilator drug used alone. A few cases developed serious complications from IPPB (spontaneous pneumothorax and cystic enlargement).

For IPPB to be effective the patient must permit full lung expansion. Equipment is so designed that pressure equalization turns off the valve. Some patients tend to blow, hence inspiration is cut off before peak vital capacity is reached. Apparently IPPB achieves greater depression of the diaphragm and/or prevention of whatever paradoxical elevation occurs at full inspiration. A higher-than-normal inspiratory reserve is obtained. Patients are helped to cough up mucus.

Summarizing, short term IPPB may be used 1) to prevent or treat atelectasis due to mucus plugging of bronchi (IPPB better prevents atelectasis—a cough machine is more efficient in treating established atelectasis), 2) to hyperventilate a patient with acute respiratory acidosis, 3) to relieve pulmonary edema, 4) to maintain ventilation in respiratory paralysis outside of a respirator.

Long term IPPB may be used 1) to hyperventilate patients with a continuing problem of inadequate and uneven ventilation especially in pulmonary emphysema, 2) to assist in the removal of tenacious or excessive mucus from the bronchial tree, 3) to prevent local plugging of air passages and reinflate atelectatic areas, 4) to disseminate nebulized medication in the bronchial tree.

Role of Posture in Cardiovascular Disease

Jacob J. Silverman and Siegfried Salomon (100 Central Avenue, Staten Island, New York), ANN. INT. M., 47:59-70, July 1957

Posture in man is maintained by a delicate balance of complicated reflexes. Disturbance of this balance may result in a wide variety of circulatory manifestations. The authors discuss a number of postural syndromes of special concern to the cardiologist, noting that varying postures may determine differential diagnoses of cardiovascular disease.

A common postural syndrome is vasodepressor syncope, or simple fainting. It occurs in the erect position and is removed by recumbency. In the presence of organic heart disease, this postural syndrome can be fatal. It may be the cause of death in early ambulation or may explain some "anesthesia deaths" where the patient is maintained in a mandatory upright posture.

Orthostatic hypotension (classic chronic postural hypotension) has been observed in such conditions as cerebral arteriosclerosis, peripheral neuritis, diabetic neuropathy, tabes dorsalis, a complication of sympathectomy for arterial hypertension, and Addison's disease. It occasionally has been observed in elderly males who have recently lost weight and also lead an unusually sedentary life. An abdominal binder or a tight belt and pressor drugs may offer striking relief in such cases.

Morphine is capable of producing dangerous hypotensive postural effects. It diminishes or abolishes important reflex activity in the aortic arch and carotid sinus. An ordinary dose of 15 mg. administered in the recumbent position is usually safe, but if a patient is allowed to sit or stand, this same dosage may be lethal.

Orthopnea (breathing is best performed in the erect position) is one of the cardinal symptoms of left ventricular failure, but is rare in tetralogy of Fallot. Immediately after exertion children with tetralogy of Fallot often assume a characteristic knee-chest or squatting position. This posture results in a striking relief of cyanosis and dyspnea. The beneficial effects of squatting are due to an increase in the volume of venous blood return to the heart, which leads to a more favorable oxygen saturation level of the mixed venous blood.

The assumption of a left lateral position may precipitate a shocklike state with an abrupt drop in blood pressure in many patients with heart disease. On the other hand, this position promptly corrects a postural syndrome in late pregnancy.

In many persons, the erect posture immediately after physical effort may precipitate an attack of hypotension and collapse. This mechanism may explain the nonfatal collapse sometimes observed in athletes after strenuous competitive exercise and the fatalities reported during the snow-shoveling season.

Posture studies are very important in the clinical evaluation of patients for peripheral vascular disease and the neurovascular syndromes of the shoulder girdle, as the cervical rib syndrome, the scalenus anticus syndrome, and the costoclavicular syndrome. Varicose veins are easily missed if the patient is not examined in the standing position.

The electrocardiogram is especially susceptible to variances in posture.

Many other postural syndromes are discussed—all showing the important significance of posture in diagnosing and treating cardiovascular diseases.

The Value of Routine Pulmonary Function Studies in Thoracic Surgical Cases.

H. B. Hatch, J. K. Bradford and A. Oschner (Oschner Clinic, New Orleans, La.), J. THORAC. SURG., 34:351-356, September 1957

Routine study of pulmonary function in patients with pulmonary disease is justified since there are patients in whom significant abnormalities will be discovered by these tests even though clinical studies are negative or equivocal. Detection of such physiologic abnormalities is of great importance in a specific patient, re-

gardless of the type of therapy indicated. These tests also provide quantitative evidence of progression or regression of disease.

A group of tests is available to measure objectively both divisions of pulmonary function: (1) ventilation, the mechanical component, and (2) respiration, the physiochemical component. For complete analysis of pulmonary function both should be measured.

Pulmonary function was determined by standard procedures in 212 patients in this study. Ventilatory function was measured by the vital capacity, timed vital capacity, and combined spirometry and maximum breathing capacity. Residual air was determined by the open circuit technic of Darling and his co-workers. The respiratory aspect of pulmonary function was evaluated by determination of oxygen and carbon dioxide tensions of one or more specimens of peripheral and arterial blood by the method of Filley and his associates. Additional studies such as A-A gradient and oxygen diffusion capacities, carbon monoxide capacities, and bronchospirometry were done when deemed advisable.

Of the 212 patients, 50 per cent had an abnormality of respiratory function as indicated by the reduction of arterial oxygen tension to a hypoxic level. In no patient was there evidence of carbon dioxide retention.

Thirteen per cent of the 212 patients had normal pulmonary function. Seventy-three per cent were found to have some degree of obstructive ventilatory insufficiency. In 23 of these patients it was severe enough to make thoracotomy hazardous. Results of pulmonary emphysema were apparent in 26 patients, and of these 14 were sufficiently rehabilitated by bronchodilators, expectorants, and breathing exercises so that some type of excisional or reparative surgical procedure could eventually be accomplished. In the remaining 14 per cent of the 212 patients there was evidence of a predominantly restrictive type of ventilatory insufficiency.

Seventy-one per cent of the entire series had a surgical procedure consisting of at least a thoracotomy; in 10 per cent operation was contraindicated because of definite pulmonary insufficiency; and in 19 per cent operation was not performed for various other reasons.

Three things can be accomplished by preoperative performance of pulmonary function studies. First, knowledge of the basic physiologic pulmonary normalcy of abnormality of patients enables more adequate treatment of any associated disease and thus makes the operative and the postoperative courses of this patient smoother. Second, a significant percentage of patients is sufficiently rehabilitated to permit performance of the indicated surgical procedure. And finally, we are able to ascertain the presence of disease particularly diffusion defects, that were not suspected clinically and that might result in disaster if operation were performed. Both morbidity and mortality rates, as a result of postoperative insufficiency, are decreasing as we become more aware of the value of analysis of pulmonary function for thoracic surgical problems.

Vasocutaneous Syndrome of the Leg

Hector Quijano Mendez (Universidad Nacional de Mexico, Mexico), ANGIOLOGY, 8: 340-341, August 1957

The term, "vasocutaneous syndrome of the leg," is used by the author to describe a nonspecific ulcer which is neither a skin lesion corresponding to a definite circulatory disorder, such as the varicose ulcer, nor is it it lesion of the peripheral circulation arising from a cutaneous disease. This syndrome demonstrates definite vasocutaneous interaction and frequently it is difficult to determine the primary factor in its origin.

The skin of the lower leg is much more fragile with less potential for regeneration in relation to other parts of the body. Trophic changes are often observed here and functional deviations of the circulation are common, due to the gravitational factors inherent in man's erect posture. The blood vessels of the legs are the largest in the body, at the greatest distance from the heart, and lack adequate support from surrounding tissues. The vulnerability of the legs is recognized in the high incidence of traumatic involvement of the lower extremities in everyday life.

Normal nutrition of the skin is dependent on an adequate supply of the elements circulating in the blood which are necessary for proper nutrition. The vascular system must supply adequate arterial blood and sufficient venous and lymphatic drainage, while the nervous control by the fibers of the sympathetic system must maintain the vasomotor equilibrium of the skin.

In the vasocutaneous syndrome, an abnormal skin condition originates a noxious stimuli which causes a vasodepressor impulse to be transmitted by a reflex arc through the lumbar sympathetic trunk. As a result of this vasodepressor impulse arterial and capillary spasm occur with resultant tissue and capillary wall anoxia. Changes in the permeability of the capillary wall which follow, permit abnormal escape of plasma and blood corpuscles to the intercellular spaces. As a result of excessive extracapillary fluid movement as well as capillary spasm, a marked delay of the flow to the venules follows and an overload is imposed on the lymphatic system, which leads to collagenous degeneration and favors fibroblastic invasion. The metabolism of the skin becomes inadequate and the undernourished skin is prone to pyogenic or mycotic invasion. Infections of the skin invade the nearby vessels and cause thrombosis, infarcts, lymphangitis or thrombophlebitis.

Careful clinical examination is essential to differentiate this syndrome for symptomatic ulcerous lesions, arterial ulcers, neurotrophic lesions at points of support or function, ulcers associated with general diseases and chronic edema of the lower extremities, as well as cutaneous diseases of a specific infectious origin.

Treatment for this condition should be directed to the interruption of the sympathetic nervous pathways which may be accomplished preferably by gangliolumbar sympathectomy. Affected skin should be excised surgically and the area covered by a full thickness skin graft. To insure success of the skin graft, the wearing of elastic stockings, frequent lubrication of the grafted areas, and elevation of the legs is recommended.

A Short Examination for Aphasia

Hildred Schuell (Minneapolis, Minn.), NEUROLOGY, 7: 625-634, September 1957

A practical examination for aphasia is suggested as a means of classifying aphasic disturbances into one of five main groups according to the type of impairment presented.

This author indicates that approximately 90 per cent of aphasic patients may be dedifferentiated into five clinical groups for which both prognastic and treatment procedures have been sketched. The four parts of the test sample auditory, visual, speech

and language, visual and writing disturbances.

The examination, requiring only 30 to 35 minutes for its completion, appears to be easily constructed and administered. This test, based on the Minnesota Test for Differential Diagnosis of Aphasia, is reportedly useful with the patient whose physiological condition has been stabilized. It relies primarily on type rather than severity of impairment for predicting extent of the recovery process.

Scientific Exhibit — Brain Tumors in Children

R. S. Knighton (Henry Ford Hospital, Detroit), POSTGRAD. M., 22: 302-315, September 1957

This excellent colored picture presentation of brain tumors in children begins with a classification of tumors. Supratentorial tumors comprise 35 per cent and infratentorial tumors 65 per cent. The signs, symptoms, diagnosis, and treatment are listed.

Following this are six double pages, showing six types of tumors. For each one is shown the location, surgical specimen, histologic preparation, E.E.G. and X rays, signs and symptoms, diagnostic studies, and treatment given.

The six types of tumors presented are glioma of the hemispheres, craniopharyngioma, lipoma of the corpus callosum, astrocytoma of cerebellum, medulloblastoma, and glioma of brainstem.

The Anatomical and Physiological Basis of Low Back Pain

D. V. Davies (St. Thomas Hospital Medical School, London), PRACTITIONER, LOND., 179: 123-128, August 1957

Low back pain is often a difficult clinical problem because of a lack of knowledge of the anatomy involved, the mechanism of pain, and the unknown etiology and pathology of many lesions. The author briefly describes the development of the vertebral column, the thoracolumbar and lumbosacral junctions, the vertebral venous plexus, and the intervertebral disks. The muscular and ligamentous attachments of the vertebral column must be noted and are best studied in special articles.

With our present knowledge it is difficult to assess the significance and mechanism of pain and tenderness in the lower back, radiating to the lower limbs. However, the distribution of the pain arising in somatic structures depends more upon the depth of the structure stimulated than upon its nature. Pain arising deep in the deep fascia tends to be diffuse and segmentally distributed, i.e. it is projected to the area innervated by the spinal nerve supplying the structure. Pain arising in muscles or interspinous ligaments is a continuous ache and is associated with tenderness in the territory of its distribution.

Much remains to be learned about the mechanism of pain arising from localized lesions or stimulation of the tissues in the back and within the pelvis. There is great confusion and little agreement on many aspects of the problem, and nothing can be gained from elaborate theories unsupported by accurate observation and sound reasoning based on the few known facts.

Flexion-Compression Injury of the Sternum

A. W. Fowler (Bridgend General Hospital, Bridgend, Glamorgan, Wales), J. BONE SURG. BRIT. VOL., 39-B: 487-497, August 1957

The author is primarily concerned with the indirect injuries to the sternum caused by compression fractures of the spine. He differentiates these from the direct injuries by clearly drawn illustrations. Thereafter, with tomographs, case reports, and discussion he explains further his observations of the manubriosternal fractures.

Of these, two characteristics are apparent; the upper manubrial fragment is depressed posteriorly in relation to the lower sternal fragment and secondly, the injury is nearly always of the first two segments of the sternum at or near the manubrio-sternal joint. Although the latter observation is generally substantiated, the question of displacement is argued. Some maintain that the fixation of the manubrium by the fist two ribs is such that it cannot be displaced posteriorly and the lower ribs must push the sternum anteriorly. Anatomically, the author agrees with this theory if the spine is in normal position. However, with a severe flexion compression it has been proved on cadavers that the spine, with manubrium attached by the ribs, moves out of position posteriorly. A few others have proposed that the clavicals contribute to sternum injuries. Absence of corroborated facts makes this questionable. A descending chin is also considered by many as a cause of manubrial displacement. However, the author proved that cervical fracture was first necessary before the chin could descend sufficiently to cause displacement.

Treatment of sternum injuries may be as easy as extending the thoracic spine over a pillow or the end of a table. If the fracture recurs in a sitting position, internal fixation with Kirschner wires or the intermediate approach of immobilizing in plaster or some type of frame may be necessary.

The author notes the importance of the first rib in the mechanism of injury; not only as described above but also in isolated fracture of the manubrium. So strong is the first rib attachment to the manubrium that the typical fracture falls on the line between the upper two thirds and lower third of the manubrium.

Fever

W. Barry Wood, Jr., SCI. AMER., 196: 62-68, June 1957

Although fever has been recognized as a sign of disease since the days of Hippocrates, it is interesting to note that modern medicine still cannot answer completely the questions pertaining to the causes of fever.

The author has reviewed the literature and finds that in a study of "normal" temperatures it is evident that individual temperatures vary widely and the mean is 98.1 degrees Fahrenheit and not the accepted 98.6 degrees. Rectal temperatures are more constant than oral but these vary with those of the internal organs which record higher temperatures. However, considering the external environment, the body maintains a relatively constant temperature. Under carefully controlled conditions, body temperatures can be lowered considerably with minimum danger but temperatures of 108 degrees can be withstood only temporarily without damage to body systems.

In experiments with cats, it has been demonstrated that the front portion of the hypothalamus prevents overheating of the body and the rear lobe of the hypothalamus in front of the midbrain is concerned with pro-

tection against cold. A proper combination produced experimentally can temporarily transform a warm blooded animal into something much like a cold blooded reptile.

Thus temperature mechanisms are understood to a somewhat greater degree than the common fever phenomenon. Beeson, after work with rabbits, suggests that disease releases from polymorphonuclear white blood cells, a substance called pyrogen. This acts upon the temperature regulating centers of the brain in the hypothalamus, and fever is induced. This hypothesis is based on the following facts:

1. White blood cell extract does not produce a tolerance to fever as does a foreign pyrogen.
2. Injection of a bacterial pyrogen sharply reduces the numbers of white blood cells, thus leading to the supposition that they are destroyed.
3. If rabbits are injected with typhoid vaccine, the blood contains a second substance with all the properties of the pyrogen released from the white blood cells.
4. The pyrogenic substance found in the fluid of inflammation comes from the polymorphonuclear white cells.
5. Injections of pyrogens produced in the body act directly on the brain but foreign pyrogens must first damage the white cells.

These facts support the theory that the fever of disease is the result of some substance released from injured white blood cells which travels via the blood stream to the temperature regulating mechanism of the body. However, several questions remain to be answered.

There is no evidence of pyrogen in the monocyte nor in the lymph cell, yet tuberculosis causes inflammation which is made up almost entirely of monocytes, and influenza attacks the lymph system. Both diseases record elevated fevers. Two theories attempt answers for these questions at present. Polymorphonuclear cells are present in sufficient numbers to release pyrogen, or the lymph cells and monocytes do contain pyrogen but current laboratory methods are not perfected enough to detect it. The second point of concern is that pyrogen is not detectable in the blood stream, the amount perhaps being too small to discover. However, this is being examined more thoroughly for a definite answer.

Thus the evidence supporting the theory of the common fever is not complete as yet, but the author feels that it is likely to be substantiated in the near future.

Neurological Case Histories of Two Olympic Champions

Ernst Jokl (Kentucky Rehabilitation Center, University of Kentucky, Lexington), J. AM. M. ASS., 165: 129-131, Sept. 14, 1957

Case histories of two participants in the 1956 Olympics are presented illustrating the fact that disease and physical disability may serve as strong incentives for the attainment of motor performances, some of them of a high order of complexity, and of athletic excellence.

One participant was a hammer throwing champion with combined upper and lower left brachial plexus paralysis; the other a pistol shooting champion whose championship ability for accurate shooting was transferred from the right arm to the left in a matter of eight months after an accident which necessitated amputation of his right arm between wrist and elbow. In the latter case, the author discusses the extent to which an established neuromotor pattern can be projected into previously untrained skeletomuscular regions. Both cases illustrate the possibility of complete functional rehabilitation after major disablement.

Backache as a Psychosomatic Manifestation

Richard Asher (Central Middlesex Hospital, England), PRACTITIONER, LOND., 179: 158-160, August 1957

Often alleged psychosomatic backaches have some physical cause which has not yet been discovered. The detection of convincing psychic factors in the way of emotional strains is no proof that they are the cause of unexplained back pain. The too easy acceptance of psychosomatic explanations may delay the discovery of physical illness and hamper research. This is not to deny that backache can be psychosomatic, but to advise restraint in too readily accepting it as such. Pure psychosomatic backache is rare although the condition does exist. Backache with a small physical factor and a relatively large mental factor is not rare and it is with that kind of backache that this article is largely concerned.

Fear and anxiety may beget or enhance backache by their influence on muscular tension. Tight muscles are painful, particularly if there is mild organic pain to be magnified thereby. Some people are oversensitive and feel discomfort too easily, especially if their lives are tedious and irksome. For others an illness such as backache provides a certain amount of satisfaction; for example, avoidance of heavy work, a means of getting attention, and a feeling of importance. There is also the sexual factor, for many cases of dyspareunia are largely of psychosomatic origin, and dyspareunia is often associated with back pain.

The presence of a psychosomatic factor is suspected when there seems a disproportionate amount of pain for the physical cause or when the emotional reaction to the pain seems to be exaggerated. The diagnosis should be provisional and often reviewed lest diseases of the spine should be missed. The management of psychosomatic overlay consists first in the doctor convincing himself of its existence and cause, and secondly, in his passing on those convictions to the patient. It is important to be able to show a patient that his pain is predominantly nervous without making him feel that his symptoms are either imaginary or fraudulent. Finally the patient must be made less "back conscious." This advice is not easy to carry out successfully, for backache with a large psychosomatic element is among the less tractable conditions seen in medical practice.

The Challenge of Painful Syndromes (The Kober Lecture)

Winchell McK. Craig (Rochester, Minn.), MIL. U., 121: 153-162, September 1957

In most instances, pain is the chief reason which brings the patient to his doctor. Pain is a subjective symptom which may result from emotional, psychic, or physical stimulation. The conception of pain is interpreted by each person in accordance with his peculiarities, his grade of will power and character, and his threshold of tolerance. It is important in these obscure situations that a detailed history be taken and evaluated carefully. A comprehensive physical examination should then be performed.

Many areas of the body are implicated in the painful syndromes. The author lists the most common of these for each region with suggestions for their management.

Within the head, pain may be due to errors in refraction or muscle imbalances of the eyes, to blood dyscrasias, to hypertension, or to the pressure of cerebral neoplasms. Cerebral vascular disease may cause head pain which is most frequently associated with changes in posture; renal disease and uremic states cause tension headaches; and intoxication with drugs, alcohol, and other agents may be the cause of pain in the head. Painful syndromes involving the head are numerous, and may be caused by, or associated with, any disease. The treatment should be directed at determining the cause and initiating the proper treatment.

Neuralgia may be defined as paroxysmal pains along the cranial or spinal nerves with no functional loss or damage to these nerves. Only three major neuralgias have been recognized. These are trigeminal neuralgia, glossopharyngeal neuralgia, and occipital neuralgia. The first of these is characterized by severe pain in the areas supplied by the fifth cranial nerve. Alcohol injection, surgical division of the posterior root of the Gasserian ganglion or intracranial division of the nerve may give relief in this condition. Glossopharyngeal neuralgia is a sudden or ticlike pain which affects the throat, tongue, ear, and angle of the jaw. The only procedure for satisfactory treatment is surgical division of the ninth, and sometimes a portion of the tenth, cranial nerve. Pain in the distribution of the occipital nerves, chiefly the second and third cervical, is termed occiptal neuralgia. Division of the first three cervical nerves is indicated, once a diagnosis of this syndrome is made. Minor neuralgias include temporal arteritis, pain in neck, shoulder and arm, causalgia, intercostal neuralgia, and infectious polyneuritis.

Any lesion involving nerves of the lumbar plexus may cause pain in the lumbar area. Persistent lumbar pain may require spinal puncture or contrast studies such as air or oil myelography. Pain in the thigh may occur along the distribution of nerves originating in the lumbar plexus.

The syndrome of sciatic pain consists of any pain which follows the course of the sciatic nerve. Careful neurologic examination, with roentgenologic examination and lumbar puncture should be performed. If pain is due to pressure of a spinal cord tumor or herniated intervertebral disk, removal is the treatment of choice.

The pain of intraspinal tumors may persist for years and a correct diagnosis may be delayed. Symptoms are described and the proper management outlined.

Surgical relief for patients with painful syndromes is dependent first on the identification of the syndrome and then the application of the surgical correction. Operations upon the central nervous system, resection of portions of the sensory cortex, chordotomy, rhizotomy, intraspinal injection of alcohol, and other procedures have proved effective in selected patients.

The problem of the painful syndrome is a vast one and will be solved only with added knowledge and the increasing effort of the clinician and surgeon to provide relief from pain.

Cervical Strain with Residual Occipital Neuritis

Ralph Pietrobono, Warren B. Allen, Harry R. Walker (Oakland, California), J. INTERNAT. COLL. SURGEONS, 28: 293-295, September 1957

The purpose of this paper is to review the symptoms, the anatomic features, and some of the causative factors in the production of symptoms in cases of cervical strain, with particular reference to occipital neuritis and its treatment.

Cervical strain produces a variety of symptoms. In a review of the cases of 100 hospitalized patients, a previous report by one of the authors demonstrated that suboccipital pain, with or without occipital pain, occurred in 53 per cent. Frontal pain was common. Twenty-eight per cent had sympathetic concomitant symptoms that included dizziness and vertigo, nausea and vomiting, blurred vision, pain in the eyes, and mydriasis.

Commonly, after cervical strain, there is occipital neuritis with tenderness over the second cervical nerve, particularly at the site where it perforates the aponeurosis of the trapezius. The posterior division of the second cervical nerve follows a long course as it passes in the fascia beneath the semispinalis capitus muscle, perforates it near the midline, and then tunnels out from beneath the aponeurosis of the trapezius muscle as the greater occipital nerve.

With reference to treatment, in this series the authors were concerned with occipital neuritis that had failed to respond to conservative measures, i.e., bedrest, sedation, cervical traction, heat and massage, the use of a Thomas collar, and postural exercises.

If the symptoms of occipital neuritis persisted, procain hydrochloride was injected directly into the occipital nerve in the region of the lower border of the skull on the side involved in the occipital protuberance.

There were 410 cases of residual occipital neuritis treated with such injections. The injections were single or multiple. Follow-up questionnaires were sent out and percentages based on 377 patients who reported showed: complete relief, 49.6 per cent; no relief, 5.7 per cent; partial relief, 29.5 per cent; and recurrence, 15.2 per cent.

Whiplash Injuries

Frank H. Mayfield (Cincinnati, Ohio) and Jack C. Griffith (Battle Creek, Mich.) J. MICHIGAN M. SOC., 56: 1142-1146, September 1957

There seems to be a popular trend to use the term "whiplash injury" for all unexplained symptoms that follow cervical trauma. In the author's opinion, the term is used improperly if it does more than describe the nature of the force to which the patient is exposed.

During surgery on several patients who had had whiplash injuries, several features of the anatomy of the upper neck were noted. The first and second cervical nerve roots are not protected posteriorly by pedicles and facets which elsewhere in the vertebral column complete the root canal. The joint between the atlas and axis is highly movable and the anterior primary ramus of C2, even under normal circumstances, is subject to unusual stress. The posterior primary ramus of C2 continues into the scalp as the greater occipital nerve emerges between bony surfaces and is capable of being crushed or traumatized by any movement of the head which would tend to approximate these surfaces. Within the normal range of motion of the neck, the second cervical nerve probably is not vulnerable to trauma. It would appear, however, that if added force were applied to the neck when it was already at its limit of normal range, such as occurs with the usual whiplash injury, damage to this structure could occur

Since the second cervical nerve supplies sensation to the major portions of the scalp and overlaps into the face area, it seems reasonable to assume that this structure may be responsible for unilateral head and/or face pain.

The authors believe that section of the second cervical nerve or avulsion of the greater occipital nerve will usually relieve that patient disabled with post-traumatic intractable suboccipital and hemicranial pain if: (1) the patient was symptomless before injury; (2) pain and tenderness are present in the region of the second cervical nerve root and the greater occipital nerve; (3) there is substantial reduction in pain sensation over the area of supply of the second cervical nerve; (4) there is aggravation of symptoms by passive movements of the neck which tend to approximate the lamina of the first and second cervical vertebrae. Surgical treatment is reserved for those patients whose symptoms do not respond to conservative measures which include reassurance, rest, and head halter traction.

Long-Term Effect of Cerebro-Vascular Accidents Upon the Blood Pressure in Hypertensives

Muzaffer Aslan (Jewish Chronic Disease Hospital, Brooklyn, New York), ANGIOLOGY, 8: 359-362, August 1957

It has frequently been observed that about one third of the hypertensive patients who suffer a myocardial infarction develop and maintain a greatly lowered blood pressure subsequent to the acute episode. A fall in blood pressure is usually recorded in acute vascular accidents, but such a lowering is transient and previous levels are regained once the period of acute shock is past. The author was led to the investigation of the effect of cerebral vascular insults on the blood pressure of hypertensives by his observation of two such patients who developed and maintained normal blood pressure readings for more than a year following such insults.

To study this problem the author has analyzed the blood pressure changes in 50 patients with cerebral vascular accidents who were admitted to the Jewish Chronic Disease Hospital in Brooklyn, New York, during the period from January to September in 1953. Of these patients, 31 were women and 19 were men with an age range from 45 to 80. Forty-one of these patients, 28 women and 13 men, presented a history and signs of hypertension of varying durations. Blood pressure readings above 160 systolic and 100 diastolic were considered as hypertensive. In 20 patients, time of onset was unknown and thus presumed to be a recent development. In the remaining 21 patients, the duration was from 2 to 20 years.

Immediately following the vascular insult, 26 of the 41 patients exhibited a fall in blood pressure to normal range (lower than 160/100) which persisted for at least one week, while the pre-existing hypertension was unaffected in 15 patients. Further analysis revealed that such a fall in blood pressure was more common in women than in men. No relationship with the occurrence of this phenomenon and the age of the patient was observed, since it occurred in the middle aged group as well as in those of more advanced age. Nineteen of the 26 patients who improved had involvement of the left hemisphere.

If it can be assumed that hypertension had developed recently in the 20 patients for whom the date of onset was unknown, then it would seem that a fall in blood pressure following cerebrovascular accidents occurred more frequently in those who had a recent onset of hypertension.

The persistence of the normotension in the patients studied ranged from 2 to 24 months; 8 retained normal tension for more than 1 year, and 1 of the group demonstrated normal blood pressure readings for 2 years.

Fourteen of the patients who presented lowered blood pressures following vascular accidents were concurrently receiving treatment with hypotensive drugs. In the other 12, however, the normotension developed and persisted without intervention of such drug medication.

New Views on Muscular Tone and Relaxation

J. V. Basmajian (University of Toronto, Toronto, Ontario) CANAD. M. Ass. J., 77: 203-205, Aug., 1957

It is now generally conceded by neurophysiologists that electromyography shows conclusively the complete relaxation of normal human striated muscle at rest. In other words, by relaxing a muscle, a normal human being can abolish neuromuscular activity in it. This does not mean that there is no "tone" in skeletal muscle. It does mean that the usual definition of "tone" should be modified to state that the general tone of a muscle is determined both by the passive elasticity or turgor of muscular (and fibrous) tissues and by the active (though not continuous) contraction of muscle in response to the reaction of the nervous system to stimuli. Thus, at complete rest, a muscle has not lost its tone even though there is no neuromuscular activity in it.

The author studied the resting electromyograms in thousands of normal human muscles, 18 spastic human beings, eight normal rabbits and four chronically spastic rabbits. The completely relaxed muscle of both man and rabbit (both normal and spastic) showed no neuromuscular activity during complete relaxation. This relaxation was achieved more easily by normal persons and rabbits than by the spastic subjects. Although neuromuscular activity in spastic muscles can be abolished by simple relaxation or rest, the slightest stimuli acting through hyperactive reflexes, cause immediate and excessive activity.

Postural tone (of Sherrington) is not the same as resting tone. Unlike the latter, postural tone does mean a low level of continuous or intermittent neuromuscular activity.

Muscular tone may be defined as the responsiveness of the motor side of the nervous system to stimuli. This definition specially avoids mention of any neuromuscular activity at rest in either normal or abnormal conditions.

The Conditioned Inhibition of Uncinate Fits

Robert Efron (Neurological Research Unit, National Hospital, London), BRAIN, 80: 251-262, June 1957

Historical data discloses a number of cases in which a specific sensory stimulus arrested epileptic fits and two cases wherein repeated arrest of seizures was effected by application of a ligature—one above the elbow and the other at the knee.

The purpose of this paper is to report the arrest of seizures, not only by a conditioned, nonspecific visual stimulus, but also by a second order conditioned reflex (Pavlov).

The patient under discussion had been able to arrest uncinate seizures by a properly timed olfactory stimu-

lus. This was explained on the predication that the nociceptive (olfactory) stimulus activated a widespread inhibitory system in a "reflex" or automatic fashion. The patient was then conditioned to a nonspecific visual stimulus. Development of a second order conditioned reflex was recognized when it was discovered that the "intellectual" act of intently thinking about the visual stimulus was equally effective in arresting seizures. Finally, the patient was free from seizures for a period of more than one year, at which time she considered herself cured by virtue of the fact that for 26 years prior to that time she had never been free from them for more than a fortnight. Further, electroencephalographic studies revealed a marked decrease in sensitivity to metrazol following the conditioning process.

It has been recognized for many years that the response to a stimulus intended to precipitate a seizure *can* be conditioned. The author states that an analogy has been found in the reported patient who was eventually "cured" of her seizures by repeated arrests by sensory stimulus or their equivalents. It is fairly certain that the mechanism of one is closely related to the other.

Although reflex fit precipitation has been studied extensively, reflex fit inhibition has been almost totally neglected and further investigations are indicated in view of possible therapeutic value.

Electrolyte Levels in Normal and Dystrophic Muscle Determination by Neutron Activation

J. D. Williams, B. M. Ansell, L. Reiffel, C. A. Stone, and R. M. Kark (Departments of Medicine of the Research and Educational Hospitals, University of Illinois), LANCET, LOND., 273 : 464-468, Sept. 7, 1957

Recent studies on the electrolyte levels of patients with progressive muscular atrophy show a high sodium level and a low potassium level. This same condition was found to exist in the skeletal muscle of animals with experimentally induced muscular dystrophy.

In this study, the method of neutron activation of small samples of tissue was used to determine electrolyte levels. This method involves the bombardment of small tissue samples with slow neutrons so as to render radioactive the elements contained in the sample. The analysis then depends on the different energies of the gamma rays and beta particles emitted from the isotopes and on their different rates of decay.

Samples of skeletal muscle were taken from (1) patients with no evidence of any muscular disorder, (2) patients with progressive muscular dystrophy of the pseudohypertrophic type, (3) patients with various types of muscular involvements such as thyrotoxic myopathy, myotonia congenita, dystrophia myotonica, poliomyelitis, myopathy of undetermined nature and chronic polymyositis. All samples were taken from the deltoid or gastrocnemius muscles.

The sodium, potassium, phosphorus and noncollagen nitrogen levels were determined. The noncollagen nitrogen level in pathological muscle varied widely, such variation being much less evident in normal muscle. Statistical analysis of the data indicates that dystrophic muscle contains significantly less potassium than the normal. To a similar degree of significance, its sodium content is greater.

Since experimental and clinical observation points to the vital importance of potassium in muscle metabolism, the low level of this substance in various dystrophic disorders seems highly significant. The question posed by the authors is whether there is a primary defect of potassium metabolism or a secondary leakage of potassium from the damaged cell. The latter was considered most probable.

Backache in General Practice

R. M. McGregor (Hawick, Roxburghshire, England), PRACTITIONER, LOND., 179: 152-157, August 1957

This article tries to show the varieties of backache which have been encountered in one particular practice. The family doctor successfully treats the largest proportion of his cases, many of which are due to lesions of the soft tissues. The hospitals receive the cases which show some gross pathological change and those which have failed to respond to treatment.

A great difficulty in dealing with backache is the assessment of the severity of pain. Furthermore, the threshold of pain is subject to great variation between persons and also in the same person. Some conditions which cause aching in more than one region of the back are: osteoarthritis, adiposity, anemia, defective posture, and osteoporosis. The author discusses the pain and its possible causes commonly found in the dorsal, lumbar, and sacral regions.

Treatment for relief of pain usually consists of heat and drugs. If these fail, a local anesthetic is injected into the tender spots, often in the region of the supraspinatus or sacrospinalis muscles. The majority of patients recover using these measures but a few require advice and help from orthopedic or other colleagues. Physical therapy provides relief for the more chronic cases.

The initial approach of the family doctor is all-important. It is possible to greatly reduce the numbers who require hospital treatment by proper assessment of the cause. It is suggested that emphasis on psychosomatic causes should be avoided. This will stimulate more adequate search for a cause and reduce the amount of chronic invalidism.

The Circulation of the Nerve Impulse

William Gooddy (University College Hospital, London), LANCET LOND., 273 : 451-453, Sept. 7, 1957

As it is common to regard the heart as the central and most important organ of the cardiovascular systems from which the blood endlessly ebbs and flows, so is the brain often regarded as the chief organ of the nervous system to which the rest of the nervous tissue is an appendage, subordinate in functional importance.

A most interesting and thought provoking comparison is made here of these two systems. The author compares the likenesses and points out the differences encountered in the concept that the peripheral nerves and spinal cord are the "message bearing" equipment of the brain.

The cardiovascular system is largely one of "bulk transport" of the red blood cell. The cells are propulsed by mechanical means through the smallest arterioles where an ionic interchange is made through their membranes. Then these circulating units are collected again in ever increasing vessels and returned to the heart.

In the nervous system the nervous impulse is not a "thing" like the RBC, but rather a process. Thus the correct analogy in the two systems is between the nerve fiber and the red cell, for the nerve fiber and the red cell both produce effects by mediat-

ing biochemical reactions. In the cardiovascular system this end is obtained by a pumping round of countless numbers of circulating units capable of ionic interchange through their membranes. In the nervous system the ionic interchange takes place in the nerve fiber. It is difficult to detach oneself from the notion of functional similarity between the red cell and the nerve impulse, but it is necessary; for the real similarity is between the red cell and the nerve fiber. All that is different in the two systems is that in the cardiovascular system a supply of biochemical membranes is provided by mechanical propulsion, and in the nervous system the supply of biochemical membranes is provided by anatomical ramification and penetration.

It is emphasized that nerve impulses are propagated from all the various tissues, but it is not a matter of originating in these tissues. A movement, for instance, has served to put the sensory nerve endings (better called "beginnings," functionally) into the position where they have undergone what is called "stimulation.'" Thus, movement provides the circumstances for stimulation, which results in sensation and perception. Then as soon as local sensation and, shortly after, perception are attained, there is another motor phase.

The nerve impulse does not go from a cerebral store, for consumption like a loaf of bread; nor can it escape into space and be lost, for there is no outlet or side track from the main line by which it might get away. A nerve impulse is not lost when it causes muscular contraction, for that very contraction immediately recreates it in the muscles' efferent system (which we call afferent).

In this activity—motor-sensory-motor-sensory....ad infinitum we note an endless cyclical pattern. The endlessness of the cycle is the source of its mystery and wondrousness. The endlessness of the cycle of transmission is the essence of this article. As the movement of the blood is constantly in a circle, similarly, activity in the nervous system is a circulation. It is the circulation of the nerve impulse which provides the pattern of nervous activity. These patterns are the basis of perception. Sensation creates volition; volition provokes sensation; an endless cycle of transmission.

The author feels that those who study the structure and function of the nervous system would greatly benefit from accepting the principle of the circulation of the nerve impulse, in their attempts to understand the effects of lesions of the nervous system, and the nature of neurological symptoms.

Teen-Age Dysmenorrhea

L. J. Golub, W. R. Lang, H. Menduke, and H. C. Gordon (Jefferson Medical College, Philadelphia), AM. J. OBST. AND GYNEC., 74: 591-596, September 1957

Dysmenorrhea is noted as a major cause of disability in high schools, colleges, and industry.

Studies were made in four secondary schools with experimental and control groups in physical education classes. Throughout the school year the teachers of the experimental groups emphasized that the exercises would help treat dysmenorrhea. No particular mention of this was made to the control groups. None of the schools showed any significant difference in the incidence of dysmenorrhea from the beginning to the end of the experiment.

The psychic factor in management of dysmenorrhea is stressed by most writers. No doubt there are psychoneurotic dysmenorrhea patients; however, by no means is there general agreement on the psychogenic basis for dysmenorrhea.

Our Abstracters for January

We are indebted to the following Association members for their assistance in the preparation of the abstracts appearing in this issue.

Joan Brewer	Jean Cuthbertson
Dorothy Briggs	Marilyn Miller
Sam Chelemsky	Barbara Pause
Ethel Coeling	M. Thompson
Oleana Cole	Martha Wroe

Alfred Szumski

Book Reviews . . . . .

Modern Therapy in Neurology. *Edited by Francis M. Forster, M.D., Dean and Professor of Neurology, Georgetown University School of Medicine, Washington, D.C. Foreword by H. Houston Merritt, M.D., Professor of Neurology, College of Physicians and Surgeons, Columbia University; Director of New York Neurological Institute, New York. Cloth; price $12.00. Pp. 792. C. V. Mosby Company, St. Louis, Mo., 1957.*

This book is a first edition text and was written for the practicing physician. The editor together with 21 authoritative neurologists have produced a work which is a critical appraisal of their own methods and of the literature on the treatment of neurological disease.

Since World War II great strides have been made in the fields of antibiotics, neurochemistry, and rehabilitation. Successful management of neurological diseases may be attributed to these developments. Old and new editions of standard texts on neurology have had little information about treatment. This book has been restricted to treatment insofar as is possible. However, some descriptive and diagnostic material is included for clarification and is set in smaller type than is the main body of the book. The book deals with the treatment of encephalomyelitis, meningitis, poliomyelitis, neurosyphilis, cerebrovascular disease, multiple sclerosis and other demyelinating diseases, headache, myasthenia gravis, diseases of the muscles, epilepsy, basal ganglia diseases, metabolic and toxic disorders, disorders of cranial and peripheral nerves, degenerative and developmental diseases, brain tumors, trauma, the role of rehabilitation, and the use of tranquilizing drugs.

There is present a certain amount of repetition which emphasizes the uniformity of thought expressed by the several contributors. This is especially true as it concerns the application of physical therapy and technics of rehabilitation. Although one chapter deals with rehabilitation, several writers point out the importance of understanding the many problems of the chronically ill and the neurological patient. The various factors in the management of the patient are discussed along with a thorough appraisal of the newer drugs.

Each chapter is completely outlined and the paragraph headings are set in bold type so that specific information may be easily sought out by the reader. In addition, an extensive bibliography appears at the end of the chapter. There are some good tables listing various drugs and their action.

The book is well written and is

highly recommended as a reference book to those workers in physical medicine.

Principles and Technics of Rehabilitation Nursing. *By Florence Jones Terry, B.A., R.N., P.T., O.T.R. Board Member, Rehabilitation Center of Greater St. Louis. Formerly Chief Nurse, Institute of Rehabilitation and Physical Medicine, N.Y.U.-Bellevue Medical Center, New York; Gladys S. Benz, R.N., M.A., Chairman, Department of Maternal and Child Nursing, State University of Iowa, College of Nursing, Iowa. Formerly, Supervisor, Pediatric Department, Bellevue Hospital; Dorothy Mereness, R.N., M.A. Director of Program, Psychiatric-Mental Health Nursing, New York University School of Education, New York; and Frank R. Kleffner, Ph.D., Assistant Director of Speech Correction and Pathology, Central Institute for the Deaf. Assistant Professor of Speech, Washington University, St. Louis, Mo. Edited by Deborah MacLurg Jensen, R.N., M.A. Cloth; price $5.50. Pp. 345; illus. C. V. Mosby Company, St. Louis, Mo., 1957.*

This book is a comprehensive compilation of materials from a number of sources. As the authors intended, it provides the nurse with a guide to some of the understandings, skills and technics considered essential in the rehabilitation process. While the material is not always dealt with in great depth, the excellent references listed at the end of each chapter point to further sources of information.

Basic principles of care and treatment are indicated for all patients, but a more detailed discussion is included on programs for patients who have chronic illnesses and conditions which may result in residual disabilities.

Good illustrations and clear outlines are presented on range of joint motion, crutch walking, and activities of daily living, all areas that are becoming more and more the responsibility of the nurse.

Consideration is given to individual needs of the blind, the deaf, and those who have speech problems. The chapters on the mentally ill give a resume of the responsibility of the nurse and the individual in a recovery program. A few descriptive paragraphs on the alcoholic, and drug addict help to give the reader some idea of the psychiatric and emotional problems involved in the nursing care of the mentally ill. One chapter briefly describes the emotional aspects of the handicapped person. However, in a book on general rehabilitation, more emphasis might have been placed on the emotional factors involved in all rehabilitation, and the problems which confront the nurse who is helping patients recover or live comfortably with their handicap.

The relationship of the nurse to allied workers, especially physical therapists, in sharing responsibility and supplementing each other's program, has not been described except in a general way. If activity programs are to be successful, cooperative efforts between the therapist and nurse, with each understanding the other's function, cannot be emphasized too much.

Inasmuch as rehabilitation continues beyond the hospital or center, the book would have been more complete if there had been some discussion of the patient's return to his family and society and the nurse's participation in the public health field in prevention as well as rehabilitation.

Although it may be essential at this time to highlight the principles and technics of "rehabilitative nursing," we hope it will not be long before these basic principles become so fundamental to all good nursing that the use of the descriptive adjective is unnecessary.

Law Every Nurse Should Know. *By Helen Creighton, B.S.N., R.N., A.B., A.M., J.D. Member of the Bar of the District of Columbia; Assistant Professor of Georgetown University School of Nursing; Chairman, Committee on Membership, Graduate Nurse Association of the District of Columbia. Paper; price $3.50. Pp. 197. W. B. Saunders Co., Philadelphia, 1957.*

Although the title and the cases cited in this paper-bound handbook are designed to acquaint the nurse with her rights and duties at law, the facts and court decisions are equally applicable to others working with or for patients.

Each chapter is concise, well documented, and well presented. The section on licensure defines permissive and mandatory laws, gives their purpose and problems encountered. Of particular interest is the discussion on the need for uniform laws regarding educational standards and definition of functions.

The chapters on contracts define the various kinds recognized by law —whether written, verbal, or implied. The author emphasizes the importance of having definite terms regarding hours, salary, length of contract, duties, and days off duty. Other sections on contracts discuss how contracts may be unlawfully broken and the remedies.

The problems of liability of nurses regardless of where employed, whether an employee, employer, or independent contractor, are the areas most fully covered. In these chapters the rights and liabilities of nurses are discussed and cases showing the results of such actions are presented.

Pertinent information on witnesses, death-bed declarations, gifts and wills are included as general knowledge to help the nurse meet emergency situations. The Canadian law and legal practice pertaining to nursing is also included.

Every physical therapist needs to know his rights and duties at law. The reading of this timely handbook is an easy way of becoming acquainted with statutory and decisional law that pertains to those caring for patients. This is a book that should be in all personal and medical libraries.

Textbook of Pathology. *By Stanley L. Robbins, M.D. Associate Professor of Pathology, Boston University School of Medicine; Associate Director of the Mallory Institute of Pathology; Lecturer, Harvard Medical School and Tufts University School of Medicine, Boston, Mass. Cloth; price $18.00. Pp. 1351; illus. W. B. Saunders Company, Philadelphia, 1957.*

This is an unusually well organized detailed textbook of pathology. The text is clear, well written, and accompanied by good illustrations and a good index. The relative space devoted to general and special pathology, which is in the ratio of about 1 to 2, adequately stresses the important basic phenomena of all major disease processes.

The organization of the material is particularly commendable. Each chapter has an outline of the material covered, a review of the normal features of tissues and organs, detailed gross and microscopic descriptions of the important disease processes, and an evaluation of the clinical significance of the various changes. All students should find this method of presentation unusually

helpful. In addition clinicians should welcome the correlation of morphologic changes and clinical features of the disease processes.

This is without question a textbook of superior quality that compares favorably with the existing better textbooks on pathology. It can be used profitably by students, pathologists, and clinicians.

Artificial Limbs (Autumn 1956). *By Prosthetics Research Board, National Academy of Sciences. Paper; price, gratis: Pp. 77; illus. National Academy of Sciences, Washington, D.C., 1957.*

This issue is devoted for the most part, to the emotional problems and adjustments of the amputee. Heretofore, almost all reference to the amputee has been from the point of view of the prosthesis and its function and little attention has been paid to the amputee as a person.

The study contained in this issue helps to correct this imbalance. It also suggests future research that may throw further light on the amputee and others who suffer any kind of loss, in respect to their emotional response to other people and to situations.

The authors are well qualified to speak on the subject. There is an introductory chapter on "Artificial Limbs—Their Human Owners" by David Shakow, Ph.D., Chief, Laboratory of Psychology, National Institute of Mental Health, National Institutes of Health, Bethesda, Md. in which he applauds the Prosthetics Research Board for its selection of the monograph which forms the body of the periodical.

The monograph entitled "Adjustment to Misfortune—A Problem of Social-Psychological Rehabilitation" is written by Tamara Dembo, Ph.D., Associate Professor in Psychology, Clark University, Worcester, Massachusetts; Gloria Ladieu Leviton, Ph.D., Psychologist, La Grange, Illinois; and Beatrice A. Wright, Ph.D., Research Fellow in Psychology, University of Kansas, Lawrence.

It is the final report on the work of a study group established in February 1945 at Stanford University to explore the emotional and social relationships between injured and noninjured persons. The work was carried on partly by contract between Stanford and the Office of the Surgeon General, War Department, and partly by contract between Stanford and the Wartime Office of Scientific Research and Development.

The authors have not attempted a definitive statement as to the various aspects of the subject but have approached from a broad base by considering the impact of loss in general and its resultant problems and adjustments. Therefore the study deals not only with problems of a selected group but problems important to all.

The paper is presented in two parts. Part I deals with the general field of social-emotional relationships. Part II deals with the investigation of the visibly injured, the methods of research used, the discussion of the meanings inherent in the concept of "value loss," "sympathy," the problem of overcoming loss through its acceptance, and finally, suggestions as to the direction future research might take.

The authors see three purposes the paper may serve; one, to define problems needing further investigation; two, to broaden the general understanding of the problems involved in loss; and three, to indicate to the injured that they are considered as total persons and not as persons who have sustained a loss that makes them less than persons.

The rest of the magazine is devoted to the description of the fabrication of an artificial training arm, abstracts on current literature, and activities of the Artificial Limb Program.

The magazine in general and the research paper in particular is very readable, clear in intent and logical in approach. There has been a sincere effort to discern the truth and to present it in as unbiased a manner as possible.

There is a short bibliography cited at the end of the paper. Its brevity is probably due to the dearth of material available on this subject.

There is one group of line drawings showing the parts and operation of the training arm in the technical notes section.

This research paper answers a very definite need and indicates the direction that further study should take if we are to become more successful in understanding ourselves and others.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

Our Book Reviewers for January

Eleanor M. Anderson, Consultant in Orthopedic Nursing, Department of Baccalaureate and Higher Degree Programs, National League for Nursing, Inc., New York.

Clara Arrington, Physical Therapy Consultant, Children's Bureau, Department of Public Health Education and Welfare, Washington, D. C.

Thomas C. Lainpply, M.D., Chairman, Department of Laboratories, Chicago Wesley Memorial Hospital, Chicago.

Marie Mendler, Capt., AMSC, Chief Physical Therapist, U.S. Army Hospital, West Point, New York.

William J. Shriber, M.D., Chief, Physical Medicine Department, Beth Israel Hospital, Boston; Instructor in Medicine, Harvard and Tufts Medical Schools, Boston.

What's New .....

For more information on items write to The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review*.

---

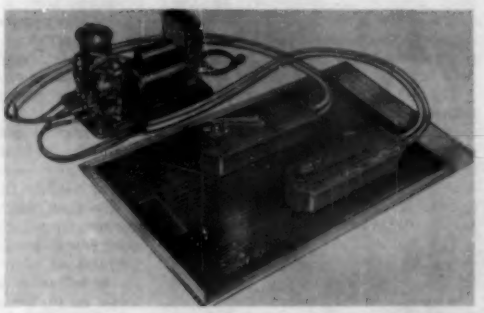
10. Can-O-Mat

Can-O-Mat is an ingenious can opener which can be operated easily with either the right or the left hand. A quick twist of the base anchors it firmly to any surface—metal, porcelain, tile, wood, or formica. Three platform levels and a small elevator attachment allow the homemaker to open round, oval, or square cans in a wide variety of sizes. An added safety and convenience feature is the removable magnet which holds the lid after the can is opened so it can be easily retrieved. Can-O-Mat has been successfully tested by patients at a leading institute of physical medicine and rehabilitation. Fascole Corporation.

11. Cushioned Toilet Seat

Softee-Seat is a new sanitary cushioned toilet seat with green vinyl finish which will not chip, crack, or peel. The tough vinyl cover is heat sealed and protects foam rubber air cushion on a nonwarp rigid base. Rehabilitation Products.

12. Invisible Dor-Man



Invisible Dor-Man is the ideal automatic operator for all swing-type doors in commercial buildings, hospitals, schools, restaurants, stores or wherever there is high frequency door use, according to the manufacturer. Recent improvements and refinements of design have been incorporated in eight models of automatic door openers.

Available in single units or pairs, the Invisible Dor-Man's design changes center around three areas—a larger and sturdier hinge, a new type molded mat and a simplified heavy-duty power unit.

The molded carpet is ½-inch thick with aluminum molding for all four sides. It is impervious to penetration of water. The power unit for both single and dual units is a low voltage, electrically hydraulic pump requiring only one 110-volt circuit plug-in receptacle.

Safety features now incorporated in the Invisible Dor-Man include: doors always open away from persons entering; doors will not open if a person is standing in way of door's swing;

if power fails, doors will operate manually; there is a panic breakaway to convert "in" doors to "exits" in emergencies. Dor-O-Matic Division, Republic Industries, Inc.

13. Dor-Gards (right)

Dor-Gards, brand name for finger guards, protect against mashing and mangling of careless fingers and hands (especially children's) in the closing space between doors and frames. Made of heavy-duty, flexible extruded vinyl, Dor-Gards have multiple flexpoints to eliminate cracking despite countless opening and closing cycles. This safety device has extruded aluminum moldings, with self-threading screws, to facilitate easy application to both sides of pivoted or hinged metal or wood doors. No unsightly anchor moldings or screws are exposed when the installation has been completed. Dor-O-Matic Division, Republic Industries, Inc.

EDITOR'S NOTE: In the November issue of the *Physical Therapy Review* the illustration for Dor-Gards appeared with a description of the Invisible Dor-Man. The photograph has been reprinted with the proper explanation.

The drawing (right), one of several humorous interpretations of a physical therapy department, was contributed by Mrs. Connie Ream, who writes, "The hospital from which my education in physical therapy came (I was a patient for two years) was the Hospital of the University of Pennsylvania. The encouragement came largely from its able staff."

Sometimes it helps to "see ourselves as others see us." Thank you, Mrs. Ream.

Index to Current Literature

(continued from page 32)

Postchordotomy Studies of Pain Threshold. Robert B. King, Neurology, 7: 610-614, September 1957

NEUROPHYSIOLOGY

A Longitudinal Study of the Babinski and Plantar Grasp Reflexes in Infancy. Harry F. Dietrich, A.M.A. J. Dis. Child., 94: 265-271, September 1957

Differentiation of Tonic from Phasic Alpha Ventral Horn Cells by Stretch, Pinna and Crossed Extension Reflexes. R Granit, C. G. Phillips, S. Skogland and G. Steg, J. Neurophysiol, 20: 470-481, September 1957

The Labyrinthine Posture Reflex (Righting Reflex) in the Cat during Weightlessness. S. J. Gerathewohl and H. D. Stallings, J. Aviat. M. 28: 345-355, August 1957

The Role of Acetylcholine in Brain Metabolism and Function. William E. Stone, Am. J. Phys. M., 36: 222-255, August 1957

NEUROSURGERY

Chemopallidectomy—Two Recent Technical Additions. B. Bravo and I. S. Cooper, J. Am. Geriat. Soc., 5: 651-655, July 1957

ORTHOPEDICS

Office Treatment of Backache. Lewis Cozen, G. P., 16: 98-107, September 1957

PEDIATRICS

Frequency of Cerebral Lateral Dominance Variations Among School Children of Premature and Full-Term Birth. Thomas H. Eames, J. Pediat., 51: 300-302, September 1957

Growth Problems in Children. Edward T. Wilkes, Arch. Pediat., N. Y., 74: 343-354, September 1957

PHYSICAL MEDICINE

The Futures of Physical Medicine. IX. An Editorial. The Need for Medical Statesmanship. Robert C. Darling, Am. J. Phys. M., 36: 193-195, August 1957

POLIOMYELITIS

Poliomyelitis Viremia In a Newborn Infant. J. Winsser, M. L. Pfaff and H. E. Seanor, Pediatrics, 20: 458-467, September 1957

Prophylaxis of Poliomyelitis. A. M. M. Payne, Brit. J. Phys. M., 20: 193-196, September 1957

Residual Disability of Pharyngeal Area Resulting from Poliomyelitis. J. F. Bosma, J. Am. Ass., 165: 216-221, Sept. 21, 1957

The Age Distribution of Poliomyelitis in the United States. W. J. Hall, N. Nathanson and A. D. Langmuir, Am. J. Hyg., 66: 214-234, September 1957

The Effect of Prior Tonsillectomy on Incidence and Clinical Type of Acute Poliomyelitis. Ralph F. Paffenbarger, Am. J. Hyg., 66: 131-150, September 1957

REHABILITATION

A Guide for Referral Agencies. E. B. Whitten, Pub. Health Rep., 72: 810-812, September 1957

Gradients of Functional Ability of Importance in Rehabilitation of Patients with Progressive Muscular and Neuromuscular Diseases. C. A. Swinyard, G. G. Deaver and L. Greenspan, Arch. Phys. M., 38: 574-579, September 1957

Rehabilitation in Multiple Sclerosis. Joseph B. Rogoff, Brit. J. Phys. M., 20: 200-204, September 1957

The Role of the Psychiatrist in Rehabilitation. Francis J. Braceland, J. Am. M. Ass., 165: 211-215, Sept. 21, 1957

RESPIRATION

Glossopharyngeal Breathing. W. H. Kelleher and R. K. Parida, Brit. M. J., 5047: 740-743, Sept. 28, 1957

MISCELLANEOUS

Leprosy in Malaya. Sheila Allardyce, Physiotherapy, 43: 225-228, August 1957

Polyethylene. Gerald Oster, Scientific American, 197: 139-152, September 1957

The Place of Relaxation in Physiotherapy. Margaret C. Smith, Physiotherapy, 43: 269-270, September 1957

Proprioceptive Neuromuscular Facilitation Film

A 35 minute color film with sound is available to chapters and schools of physical therapy at a rental fee of $10.00. One copy of the film has been given to the Association by the California Rehabilitation Center. Requests from states east of the Mississippi should be directed to the American Physical Therapy Association, 1790 Broadway, New York 19, New York; rental is payable to the American Physical Therapy Association. Those west of the Mississippi should write to California Rehabilitation Center, 2600 Alameda, Vallejo, California; rental is payable to the California Rehabilitation Center. All requests should be submitted two weeks in advance of date of showing. Alternate dates are desirable since both copies may have prior bookings.

Positions Available

WANTED IMMEDIATELY: Two qualified field staff physical therapists for home-bound service in a generalized voluntary public health nursing agency to work under qualified physical therapy supervision. Salary range $4,104-$4,968; 40-hr., 5-day week, 8 holidays, 22 working days vacation; 12 working days sick leave. Apply Asst. Director, Visiting Nurse Society of Philadelphia, 1340 Lombard St., Phila. 47, Pa.

PHYSICAL THERAPISTS (3) needed to complete a staff of 12 therapists; 1,000-bed hospital with 4 treatment areas. Three physiatrists available for teaching. Write: Miss Margot C. Trimble, Box 846, Medical College of Virginia, Richmond, Virginia.

PHYSICAL THERAPIST (Cerebral Palsy) Immediate openings in San Francisco Bay Area Health Department. Salary range: $394-$484

Registration: Possession of the legal requirements for the practice of physical therapy in California as determined by the California Board of Medical Examiners.

Education: Graduation from a recognized school of physical therapy.

Experience: One year of supervised experience in physical therapy following graduation from a recognized school of physical therapy, preferably with some experience working with cerebral palsy children.

Apply: James C. Malcolm, M.D., M.P.H., Health Officer Alameda County Health Department, City Hall 14th and Washington Streets, Oakland, California

IMMEDIATE PLACEMENT: Physical therapist for county physically handicapped persons department, 35-hour week, pension plan, paid vacation, accumulative sick leave, female preferred. For further information contact Broome County Physically Handicapped Persons Department, Room 207 County Office Bldg., Binghamton, N. Y.

WANTED: Physical therapist for staff of Department of Rehabilitation of Physical Medicine Department. Completely new facilities. Good salary; 40-hour week. Apply to Administrative Assistant, the Reading Hospital, Reading, Pennsylvania.

SUPERVISOR Florida Society for Crippled Children's Mobile Therapy Unit. Requires 3 years experience or 2 years with a master's degree. Top salary plus full maintenance and expense. Apply Don Satterlee, Program Director, 515 S. Orange Ave., Orlando, Fla.

GRADUATES OF APPROVED SCHOOLS FOR PHYSICAL THERAPISTS—California has positions open in State Hospitals, the Veterans' Home and special schools for handicapped children. Require registration with California Medical Board. Liberal employee benefits and retirement plan. No experience required to start at $395; raise to $415 after six months; promotional opportunities to $530. Write State Personnel Board, Box 71, 801 Capitol Avenue, Sacramento, California.

IMMEDIATE OPENING: Physical therapist for recently established Phys. Med. and Rehab. Department under direction of a physiatrist. Good salary, 40-hour week, paid holidays and vacation. Variety of in- and outpatient cases treated. Apply Administrator, The Williamsport Hospital, Williamsport, Penn.

PHYSICAL THERAPISTS—eligible for California registration, immediate placement for staff positions with Rehabilitation Center, Los Angeles. Starting salary depending on experience. Opportunity for advancement, 40-hour week and benefits. Address replies to Box 48 care of the Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

IMMEDIATE PLACEMENT experienced physical therapist, male or female, APTA, to work in well equipped, expanding, 70-bed Rehabilitation Hospital-School. Children and adults. Includes outpatient program. Liberal vacation, sick leave and holiday benefits. Salary commensurate with experience. Apply Administrator, Sunnyview, 124 Rosa Rd., Schenectady, New York.

REHABILITATION and general medical hospital desires services of additional physical therapists, male or female. Near New Haven, close to Hartford and Waterbury. Fully equipped, air-conditioned physical therapy department. Policies and consultation by Dr. Thomas Hines, Physiatrist-in-Chief, Yale University, Department of Physical Medicine. Physical Therapist-in-Charge, Miss Charlotte Kinney, B.S., R.P.T. Salary open. Personal interview requested. Address Director, Box 440, Wallingford, Conn.

(continued on next page)

Classified WANT-ADS

RATES

The rate per insertion is $1.00 per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

ALL WANT-ADS MUST BE PAID FOR IN ADVANCE. Make checks or money orders payable to the American Physical Therapy Association.

Closing date for copy and cancellations is two months preceding publication date.

Institutions or physical therapists who do not wish their identity known may arrange for Blind Ad Code No. All such want-ads must include the following which will be counted as 2 lines:

Address replies to ..... care of **The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.**

IMPORTANT

It is understood and agreed that the publisher shall have the right to reject or change the wording of any advertisement which in the opinion of the Editorial Board shall not be in agreement with the ethical standing of this publication.

Positions Available

WANTED: TWO STAFF PHYSICAL THERAPISTS, registered and/or members of the APTA for 350-bed fully accredited hospital. Located on beautiful Long Island Sound, one hour from New York City. Apply Personnel Department, Norwalk Hospital, Norwalk, Connecticut.

PHYSICAL THERAPIST: exp., 285-bed gen. hosp. Well equipped dept. treats all types of patients. Excellent starting salary, vacations paid, Blue Cross Insurance. Easy reach of Chicago & Milwaukee. Address replies to Box 52 The Physical Therapy Review, 1790 Broadway, New York 19, New York.

QUALIFIED PHYSICAL THERAPIST. Immediate placement in an outpatient cerebral palsy training center. Personnel policies excellent. Liberal salary. Five-day week, 9 A.M. to 3:45 P.M. Contact Robert Schlitt, Director, Peninsula Cerebral Palsy Training Center, Walter Reed School, 901 Twenty-fourth Street, Newport News, Virginia.

PHYSICAL THERAPIST: Staff position, 272-bed general hospital. Salary open. Treat inpatients and outpatients. Fully air-conditioned hospital. Two-week vacation, social security, Blue Cross benefits, laundry of uniform. Write Personnel Director, Baptist Memorial Hospital, Jacksonville, Florida.

OPENING FOR PHYSICAL THERAPIST

IMMEDIATE OPENING for a qualified physical therapist in rehabilitation technics to teach and supervise visiting nurses in appropriate procedures; to instruct home bound patients, and to carry small case load. Experience in a Visiting Nurse Association desirable. Salary commensurate with experience. Liberal personnel policies. Write Anna C. Gring, Director Visiting Nurse Association, 87 Washington Avenue, Bridgeport, Conn.

IMMEDIATE PLACEMENT for additional qualified staff physical therapists (male or female) for physical medicine and rehabilitation institute serving two hospitals, in largest centrally located industrial center in Illinois. Full time medical supervision, 40-hour, 5-day work week, excellent salary with regular increments. Write: Administrator, Institute of Physical Medicine and Rehabilitation, 619 North Glen Oak Avenue, Peoria, Illinois.

WANTED: QUALIFIED physical therapist for cerebral palsy patients; 35-hr. week, 2 months' (July-Aug.) paid vacation. Salary commensurate with experience. Apply: United Cerebral Palsy Guild, 1005 Washington St., Hoboken, N. J.

STAFF PHYSICAL THERAPIST: 225-bed general hospital located in Berkshires. Rapidly expanding department; 40-hour week, paid vacation, sick leave; salary commensurate with experience. Pleasant working conditions. Excellent opportunity for advancement. Contact Pittsfield General Hospital, Physical Therapy Department, Pittsfield, Mass.

PHYSICAL THERAPIST needed for new Children's Orthopedic hospital. Census 50. Maintenance optional; 40-hour week. Good salary, one meal without cost. Write Eleanor Baird, Shriners Hospital, Lexington, Kentucky.

OPPORTUNITY FOR STAFF physical therapist to participate in a rapidly growing rehabilitation center. The facilities include comprehensive medical care, occupational therapy, speech therapy, clinical psychology, psychometric testing, vocational testing sheltered workshop and orthopedic appliances. Salaries are commensurate with experience in the field with regular semi-annual increments. Twenty-one vacation days yearly, six paid holidays, Blue Cross Group Plan, and other benefits. Write to: Executive Director, Harmarville Rehabilitation Center, Ridge Road, Pittsburgh 38, Pennsylvania.

WANTED: Staff physical therapist, MALE or FEMALE. New department completely equipped. Salary open. Forty-hour week, vacation, sick leave. Wide variety of cases with both in- and outpatients treated. Apply: Personnel Office, St. John's Hospital, 1235 E. Cherokee, Springfield, Mo.

WANTED: Registered female physical therapist; 250-bed general hospital; 40-hour week, 6 paid holidays, 2 weeks' vacation annually. Social Security group participation Blue Cross-Blue Shield. Immediate opening —starting salary $400.00 per month with increase of $25.00 at the end of 6 months and 1 year. Address: Administrator, Union Hospital, Terre Haute, Indiana.

PHYSICAL THERAPIST: Staff position. Opportunity for varied experience; 650-bed general hospital, near center of cultural and educational activities. Vacation, sick leave and social security benefits. Apply Personnel Director, Harper Hospital, Detroit 1, Michigan.

TWO registered physical therapists for STAFF positions in a new, rapidly expanding department in a 5,000-bed institution for the mentally retarded. New graduates acceptable. Range $387-$473; salary open. Excellent employee benefits. Sixty per cent cerebral palsy, 40 per cent orthopedic and other. Located in beautiful Rock River Valley. Contact: Superintendent, Dixon State School, Dixon, Ill.

WANTED: TWO FEMALE PHYSICAL THERAPISTS; 500-bed, general hospital for adult patients only. Variety in case load. Outpatients as well as hospital cases. Social Security, good salary, paid vacation, 40-hour week. Inquire Akron General Hospital, attention Miss Helen Meida, Akron, Ohio.

Immediate opening for STAFF PHYSICAL THERAPIST in new children's 30-bed multi-disability facility. Unit of a medical center which includes 500-bed hospital, medical and nursing schools and progressive research program. Increasing emphasis rehabilitation training. Unit is completely equipped and air conditioned, in attractive setting near University. Salary $3,456-$4,320. Apply Martha Norris, Coordinator, University of Virginia, Children's Rehabilitation Center, Charlottesville, Va.

12

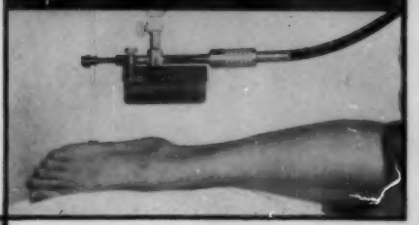
THE ADVANTAGES OF MICROWAVE DIATHERMY

BURDICK MW-1 MICROWAVE UNIT

The physiological effects of microwave diathermy are deep tissue heating (up to 106° F. two inches deep in muscle tissue) with increased blood flow.

In microwave diathermy radiations may be reflected, focused or directed to the exact area desired. The floating arm with spacer permits easy positioning of the director, to the treatment area — without skin contact. Single power control and automatic timer insure simple operation and time-saving convenience.

With the Burdick MW-1 Microwave you have the confidence of superb workmanship backed by a nationwide service organization. The Burdick Corporation is happy to supply you with further information on Microwave Diathermy, or to give you a free demonstration of the MW-1.



Application to an injured ankle

Arthritic hands being treated

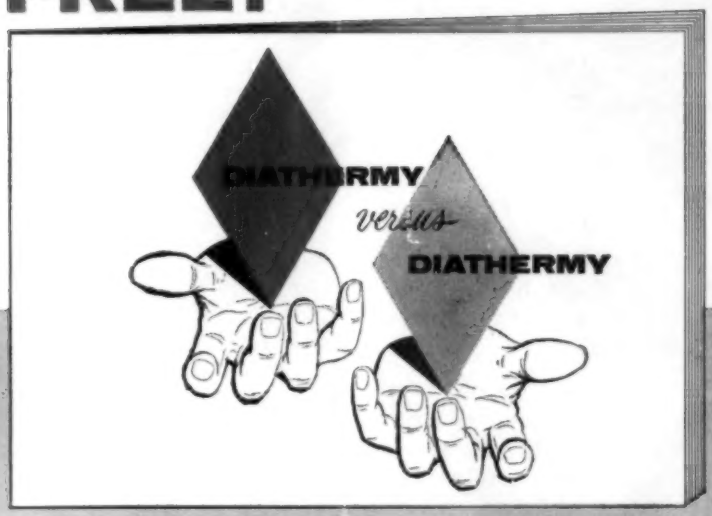
An effective treatment for bursitis

The Burdick Syllabus, a bulletin on physical medicine, will be sent you regularly on request.

THE BURDICK CORPORATION
MILTON, WISCONSIN
Branch Offices:
New York • Chicago • Atlanta • Los Angeles
Dealers in all principal cities

Burdick®

FREE!



COMPLETE ANALYSIS OF DIATHERMY IN TODAY'S PRACTICE

Here's your best opportunity to study a fast-reading, straightforward analysis of modern diathermy techniques. This new report graphically reveals why microwave diathermy is the most effective diathermy technique available to the profession today.

Raytheon is privileged to offer this report without cost or obligation. For your copy just fill out and return coupon below.

MAIL THIS COUPON.....

RAYTHEON

Excellence in Electronics

Raytheon Manufacturing Company
Commercial Equipment Division
Medical Products Department
Waltham 54, Massachusetts

Please send me a copy of report *Diathermy vs Diathermy*.

Name_____

Street_____

City_____ Zone_____ State_____